The SUN Compendium

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THE SUN COMPENDIUM

FOR USERS OF PHOTO-PROCESS ENGRAVING

WITH NOTES ON PAPERS
INKS AND MACHINES USED
TO ENSURE SUCCESS

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Foreword

ALL those who come in daily contact with the users of Photo-process Engraving realize there is a need for a better understanding of the process. Many books have been written on the subject, but they mostly deal with its technical and scientific features. While such volumes are necessary to those engaged in the craft, they are beyond the understanding of those not actively employed in the art itself. It is necessary, however, that the public who use photo-process engravings should have a better understanding of the principal elements involved and how to use them to obtain the best results.

The object of this book, therefore, is to give some practical information in a concise form to all those who use Photo-process engraving. It deals tersely with the processes employed in engraving the different classes of work, either Line, Half-tone, or Photogravure—the nature of the originals to supply to get the best results, and how to order your blocks.

The book also deals with adjuncts such as mediums or stipples—how and when to use them; as well as the varying screens used in half-tone engraving—their values, and the papers best suited for their successful printing.

A section of the Compendium is given to Stereotyping and Electrotyping, and advises when either of these duplicating processes should be employed.

It also contains the Schedule of Minimum Prices adopted by The Master Process Engravers Federation, and the Schedule of Prices of the Electrotypers and Stereotypers Federation in the form of tabulated price lists, so that one can see at a glance the cost of a block and its accompanying duplicate.

The wise selection of the papers, inks, and printing machines to be used in the printing of process blocks is an important factor in ensuring the best results. This Compendium contains advice and information on these important points.

We wish to acknowledge the valuable assistance we have received from Mr. Chas. F. Cook of Watford, who has contributed several articles in this book.

We also wish to express our indebtedness to Mr. Harry A. Grosbeck, Junr., for the use of the Chart showing the progressive stages in the production of photo-engraving, appearing on page 97; and to the Baltimore-Maryland Engraving Company for the illustrated pages "How a line block is made," and "How a half-tone is made."

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This book is printed throughout
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PHOTO-PROCESS ENGRAVING

PHOTO-PROCESS ENGRAVING—or Process Work, as it is more commonly called—is the term used to designate that group of photographic and chemical processes by which the great bulk of the engravings of to-day are produced, and perhaps more particularly does it apply to those two outstanding methods of reproduction as line process and half-tone process. These processes are universal and are applicable to the reproduction of an immense variety of subjects, both in monotone and colour.

Photo-process engraving is the art of photographically printing an acid resist on a metal plate and then etching the unprotected parts. The etched parts become lower than the protected parts, which remain in relief and become the printing surface of the plate. Any printing plate in this form is called a " relief plate," whether the low areas are etched away or cut by hand or machine. Woodcuts and type are the oldest representatives of the relief class of printing processes.

Almost all process work is primarily dependent upon photography—the art of preparing permanent representations of objects by means of the light they emit and transmit. Photo-process engraving is, therefore, a highly scientific process governed by natural laws, and having its limitations as rigidly defined as the two poles.

As above mentioned, there are two kinds of Photo-process engravings: line plates and half-tones. There are a great many styles of each and they may be combined in many ways, but these two represent the basic groups on which all others are built.

The line block is the reproduction of subjects in " black and white " (i.e. solid black designs on white ground), and the half-tone block is the reproduction of subjects in " light and shade " (such as photographs and wash drawings, containing not only solid black and pure white, but many intermediate grey tints). The former is easier. All that is required in a printing surface to reproduce " black and white " is that the design shall be represented in solid on one level, and that the remainder which is not to print shall be on a lower level. The application of black ink will then affect the design alone, and print that in solid black on white paper. " Light and shade " reproductions are more difficult. It is obvious that black ink applied all over a printing surface cannot print innumerable grey tints which make up the light and shade of a picture; it can only print solid black. It is possible, however, to give *effect to tints* by printing masses of black through which the white paper is allowed to appear in varying proportions. This was accomplished by the wood engraver through the use of white lines produced by cutting away proportions from the surface of a solid block of wood.

The ordinary process used by the Photo-process engraver for reproducing photographs or wash drawings—half-tone engravings—proceeds on an ingenious method. The negative is made through a ruled screen on glass, and in the process of photography this screen breaks up the tints of the original into dots of such a size and at such a distance from each other as to give the effect when printed of tints of the depth required.

THE LINE PROCESS

AS already stated the Line Process serves for the reproduction of originals consisting of black lines on a white ground. It is not possible by this method to take any account of middle tones. The original is reproduced in relief, while the spaces in between are etched away. In consequence of this it is of considerable importance, in order to secure a result satisfactory alike to the artist, to the photo-engraver, and to the user of the block, that the original should consist of definite black lines on a smooth white ground such as Bristol board. All effects which are produced by broken or uncertain lines and by wash tints must be avoided.

If it is not possible for the drawing to be on a white ground, but on one that is tinted or coloured, then it is still possible in many cases for it to be reproduced by the line process, but it is necessary that there should be a strong contrast between the tinted ground and the drawing. In such a case, however, the photographic methods have to be modified, and instead of the Wet Collodion Process, colour sensitive plates, screened with suitable colour filters, have to be employed. This increases the cost of the materials and also requires that each negative shall be dealt with individually in the metal printing and other operations.

Such originals, involving as they do greater skill, as well as a departure from routine methods, are sometimes not satisfactory, either to the photo-engraver or to the customer, more particularly if the original is not clean, sharp, and strong in contrast. It is in the customer's own interests that he should, wherever possible, provide originals which will yield good reproductions readily.

The first step in the reproduction of a line original is to fasten it to the copy-board of a camera, illuminate it with two powerful arc lamps, and make a negative of the required size.

The old wet collodion process is still employed by the photo-engraver for making the negative. It has many advantages for his purpose. A wet plate negative gives great contrast. If you photographed a line original on a dry plate you would probably be able to see through the densest part. Not so on a wet plate—the densest part would be opaque. The black parts of the original in a dry plate would be more or less veiled. In a wet plate they would be perfectly clear glass. Then again, and more important still, the wet collodion process is quick in manipulation.

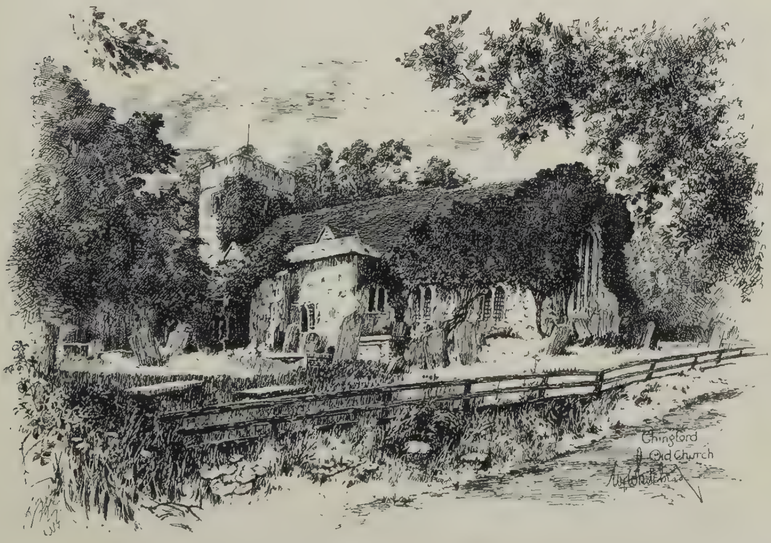
In the wet collodion process the plates are coated and sensitized as they are required, and while the operations are numerous in their details, the work is so organized that it proceeds with rapidity. The many washings which the plate has to undergo, after developing, after fixing, and so on, are shorter than they would be with dry plates, because the collodion film is much more porous than gelatine. The negatives are intensified so as to give an intense black, and the finished negative resembles somewhat a stencil.

As the etching process is long and involves the repetition of several operations, it is usual to etch a number of jobs at the same time. This is commonly done by stripping the collodion negative films from their supporting glasses, and laying them down on a large sheet of glass, thus building up a compound negative.

This negative is printed upon a sheet of polished zinc previously prepared with a sensitized coating. As in practically all photo-mechanical processes, a bichromated colloid is employed for obtaining the photographic image on the printing surface. Here the method is particularly ingenious. The metal is coated with a thin film of sensitized albumen. The plate is then exposed to light under the negative, and afterwards rolled up with a thin layer of tacky ink. On now placing it in water the films are permeated by it, and where the albumen has been protected from the action of light by the opaque portions of the negative, there it dissolves and can readily be rubbed away, bringing the ink with it. The albumen film with the ink on top remains on those parts of the plate which have been exposed to light. In this way a delicate print in ink is obtained on the metal surface. This is then reinforced by powdered resin, which, after being dusted on the plate, is melted into the ink.

The plate is etched by treatment in a series of baths of nitric acid of increasing strengths. During this etching it is necessary to protect the sides of the lines to prevent undercutting by the acid. This is done either by rolling the plate with an ink which contains beeswax, and warming it so that the beeswax runs down the etched slopes of the lines, protecting them from further etching, or by dusting finely powdered dragon's-blood against these edges and melting it in place.

When the etching has been carried far enough, any large spaces of zinc are cut away on a routing machine, and the plate is mounted on wood to the height of type, and after proofing is ready for printing.



Printed from a fine line plate reproducing a pen drawing original.

THE HALF-TONE PROCESS

WHILE the line block reproduces designs in black and white, the half-tone block deals with the commoner case, where there is a variety of tones, as in ordinary photographs and wash drawings. The method really depends on an illusion. In typographic printing, it is only possible to print solid ink on the paper, and the appearance of varying tones is obtained by breaking them up into dots which vary in size. The dots are equally spaced, and each carries an amount of ink proportionate to its size, and so the light tones are imitated by very small dots, while larger and larger dots up to a solid black, give the darker tones. The perfection of the method is such, that not merely is detail suggested by this variation of the dot in size, but the individual dots vary also in shape, and in this way help to indicate fine details. The print must always be viewed at such a distance that the individual dots are not appreciated by the eye, but are blended to uniform tone.

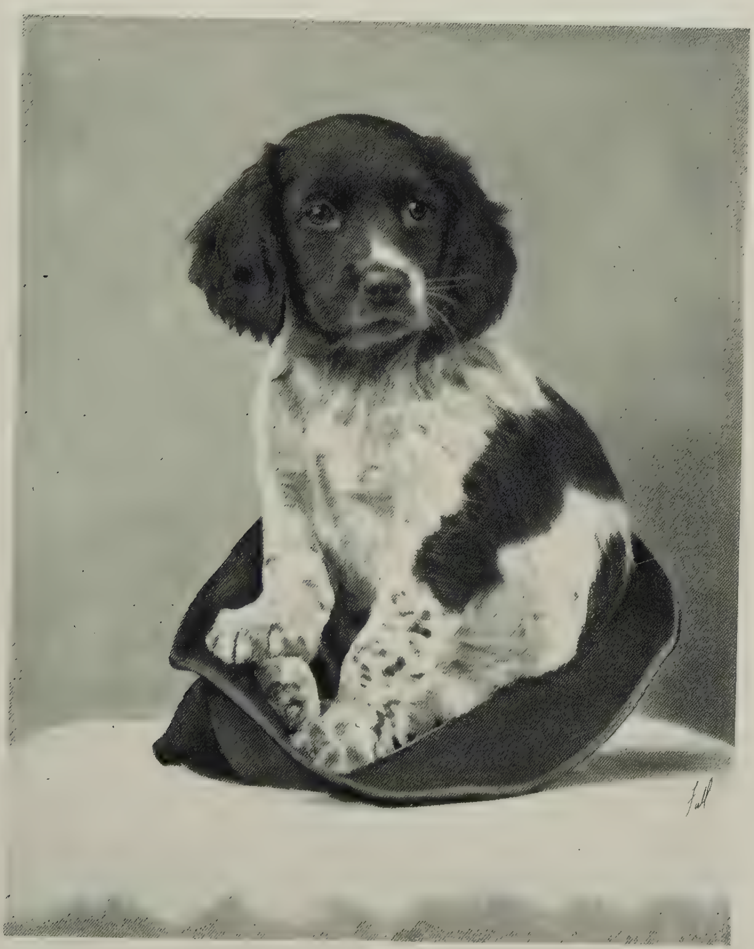
The photographic operations for this method of reproduction are, in the main, similar to those of line work. The same wet collodion method is usually employed, only worked with somewhat greater care. The breaking up of the continuous tones in the original into dots is effected by placing in front of the photographic plate a ruled half-tone screen. This consists of two sheets of glass, each having a set of regular opaque lines ruled on it. The lines and spaces are of equal width, and the two sheets are cemented so that the lines cross at right angles. This cross line screen is held in position in front of the photographic plate on an adjustable framework, and by altering the distance between the two, and the sizes of the stops in the lens, a negative may be produced which has the required formation of dot.

The fineness of the screen ruling varies from fifty lines to the inch, to two hundred lines, the commoner screens having eighty, one hundred, one hundred and thirty-three, or one hundred and fifty lines. Much depends upon the paper that is to be used for printing, the finer screens requiring a smooth-coated paper.

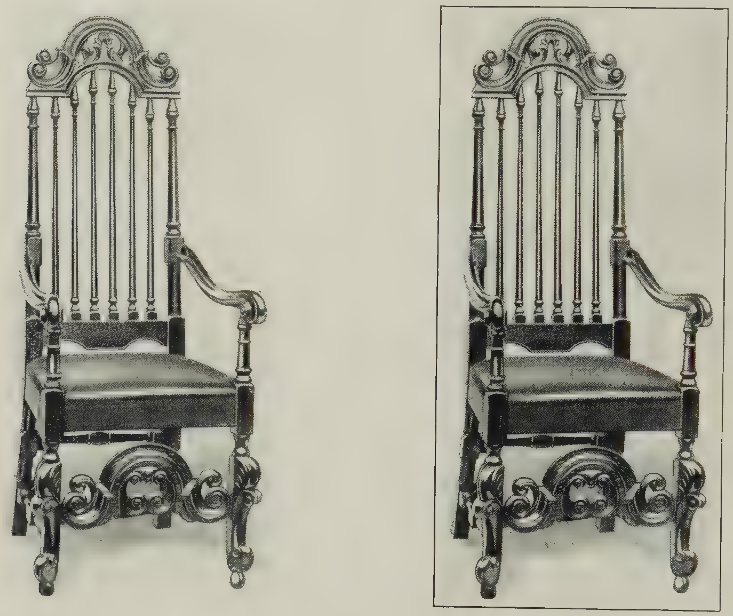
Practically any type of original may be reproduced by this method, but it should be borne in mind that the wet collodion method is usually used for making the negative, prices being in fact, based on its use, and, therefore the originals should not be coloured and should be free from yellow washes and bluish blacks, and no Chinese white should be employed because these necessitate extra work.

Pictures in colour require the use of the more expensive panchromatic plates and a slightly different technique. Deep carbon prints, especially brown ones on rough paper, present difficulties of their own. With reservations of this kind the half-tone method can reproduce any type of original.

The method of printing on metal is simpler in its idea than that used for line work. The metal, usually copper, except when coarse screens are used, when zinc is employed, is coated with a solution of fish glue and a bichromate, and this is dried so as to form a thin film, and exposed under the negative. It is developed in cold water, when the parts which have been protected from light by the opaque parts of the negative dissolve away, and leave the other parts still covered with glue. This glue covering—first dyed to make it more visible—is then hardened by heat to form a resist, and the plate is then etched so that the printing dots are left in relief. Any alterations and adjustments of light and shade are made by the fine etches, and the plate, after proofing, is finally mounted on wood to height of type ready for printing.

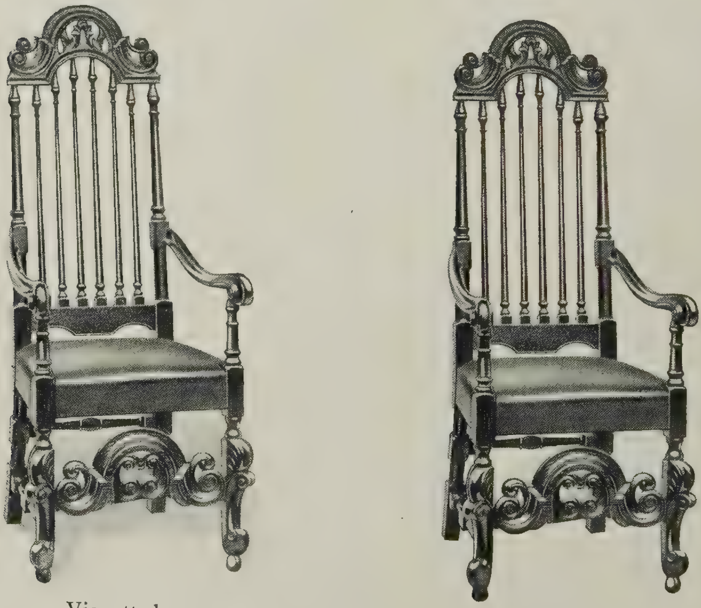


Printed from a half-tone block, screen 175, engraved from a photographic original.



Squared up, without rule.

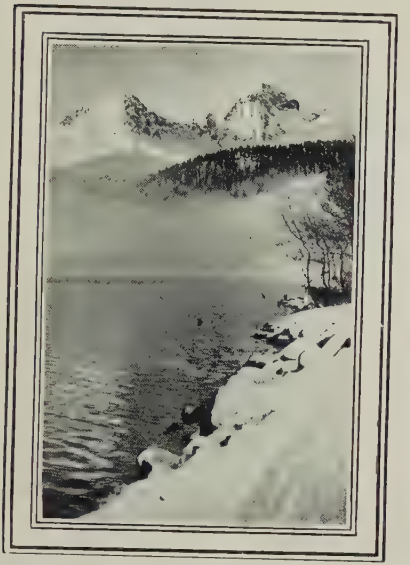
Squared up, with rule.



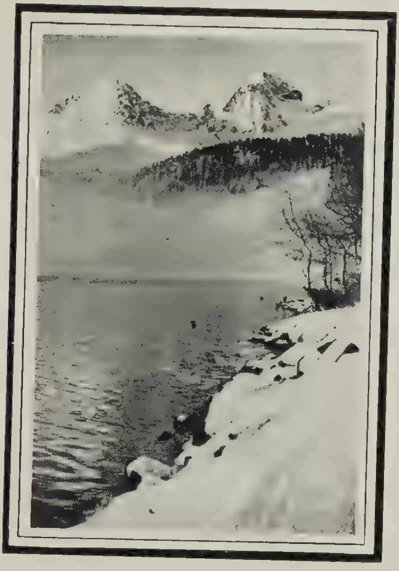
Vignetted.

Cut out.

Examples of the various finishes given to half-tone blocks



A



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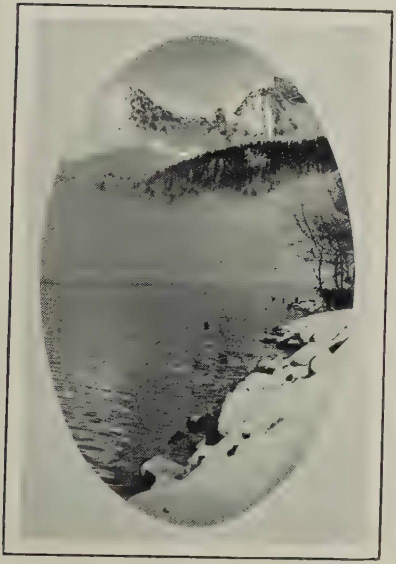

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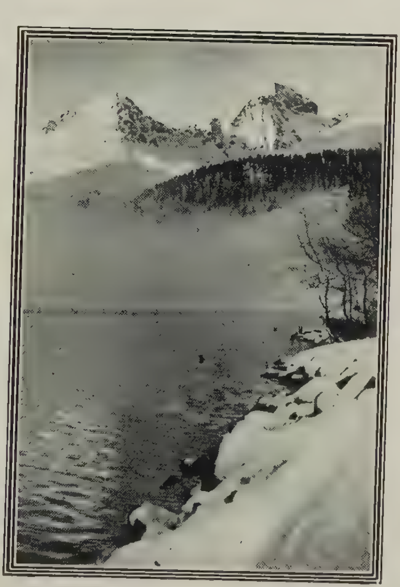

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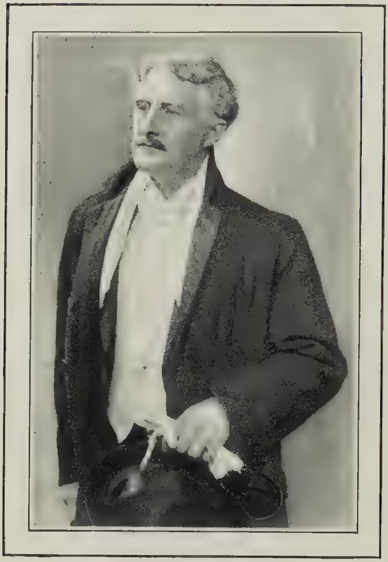
The illustrations on this and pages 8 and 9 illustrate special rulings and finishes that can be given to half-tone blocks. These rulings and finishes can be varied, and when appropriately selected, add to the pictorial effect of the illustration. It should be remembered, however,



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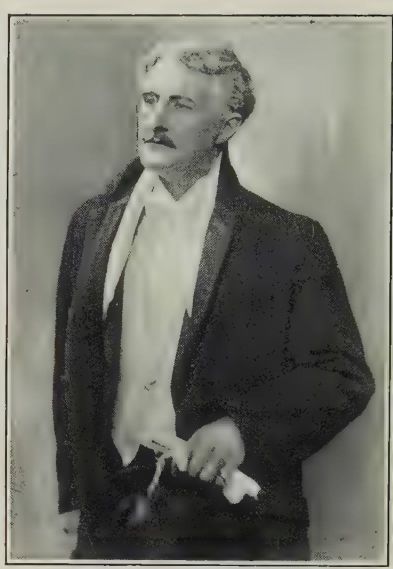

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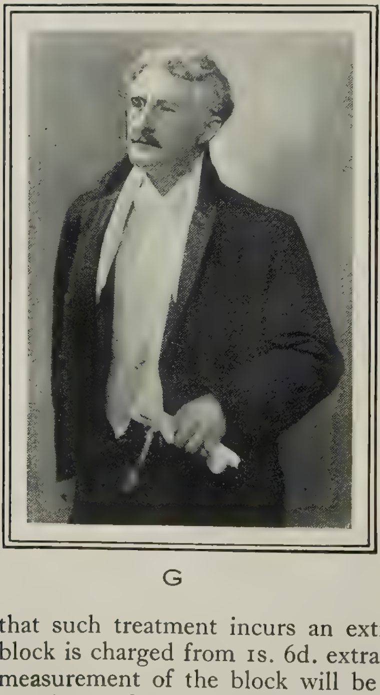

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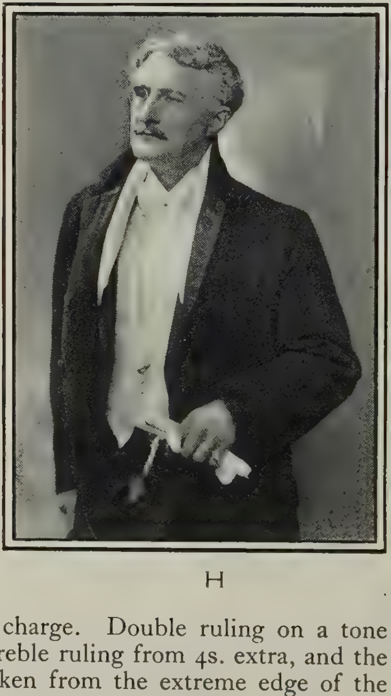
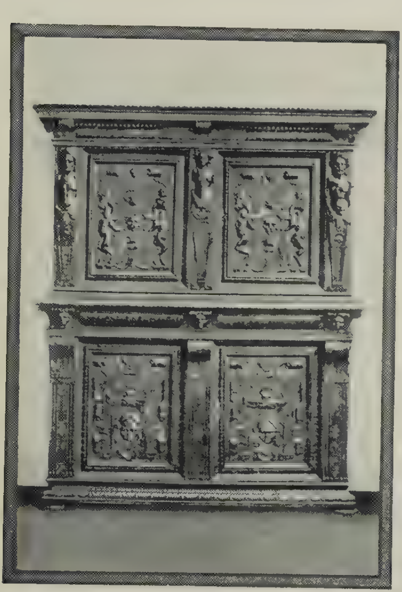


H

that such treatment incurs an extra charge. Double ruling on a tone block is charged from 1s. 6d. extra, treble ruling from 4s. extra, and the measurement of the block will be taken from the extreme edge of the printing surface. In the case of a tone border finish (examples on page 9),



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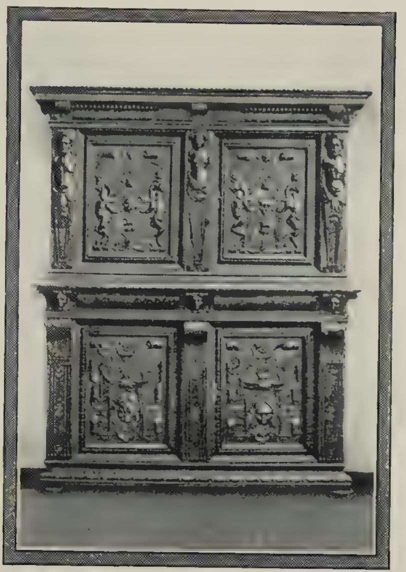

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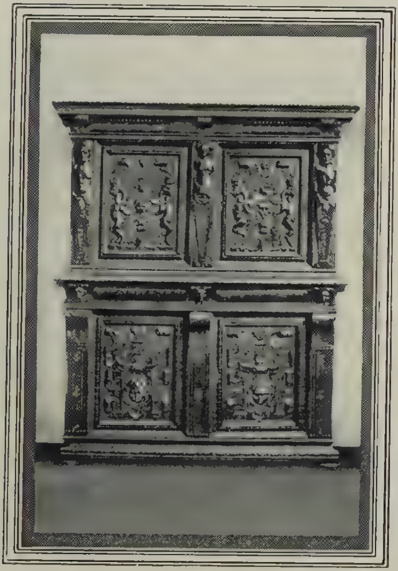

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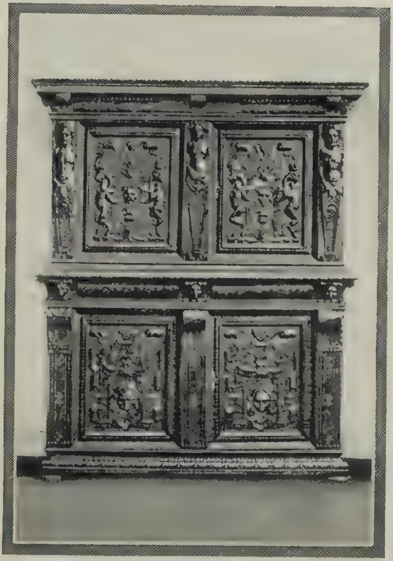


M

there is the artist's charge to be considered for adding the border to the original. When ordering a finish to a block signify which ruling or finish is desired by giving the initial letter accompanying each illustration.

THREE-COLOUR PROCESS

MODERN three-colour printing is the direct outcome of the theories of colour vision which were developed during the last century. At the commencement of the century, Dr. Thomas Young, a remarkable Edinburgh physician, who was one of the first to find a key for the translation of Egyptian hieroglyphics, worked into shape a theory of colour vision, which was further developed by Helmholtz, and later by Clerke Maxwell. Maxwell, in 1861, showed the first definite experiment in three-colour photography. His method consisted of superimposing three images in red, green, and blue upon a screen by means of three magic lanterns, but later work showed the possibility of printing three impressions superimposed upon paper, and securing a coloured reproduction.

The method employed commences by the operator photographing the coloured original three times, and for each exposure a different coloured glass or filter is placed between the lens and the plate to be exposed. The effect of these colour filters, as the coloured glasses or films are called, is to divide the colours of the original photographically into three main divisions, one being the portion of the picture which is yellow or has yellow in its composition; the second which is red or has red in its composition; and the third those parts of the picture which are in blue or have blue in the resultant colour. In practice it is found that almost any range of colours can be reproduced and printed on a good white paper by the use in proper and varying proportions of yellow, red, and blue inks.

Just a word as to the working of the colour filters. Take a bright red and green object, say red poppies and green leaves, look at this through a green-coloured glass and the poppies will appear quite black, while the green leaves are very light. A photograph and half-tone plate made like this, through the green glass or colour filter, and printed in black, would show black poppies and light grey leaves. If we print this with red ink instead of black we get red poppies and very little red on the leaves, except in the shadows.

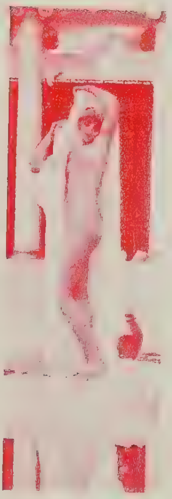
Next look at the same subject through a red glass or red filter, and this time the green leaves appear almost black and the red poppies very light in colour.

The plate made with this filter is printed in blue, and gives a fair amount of blue on the leaves and scarcely any on the poppies. A final plate made with a violet colour filter causes the parts containing yellow to photograph as black, and this, when printed in yellow, with the other two plates completes the picture.

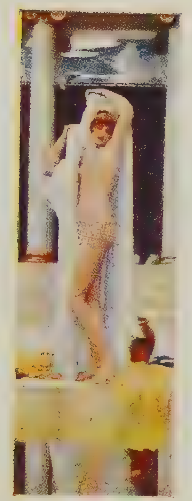
As a matter of fact, although the three plates may be printed in any order, provided inks are adjusted, the yellow is usually printed first, red second, and blue last. On finer work and full-bodied work, a fourth working is sometimes added in either grey or black.

Such a system has very wide application and almost every photographic method has been used at some time or other for obtaining three-colour

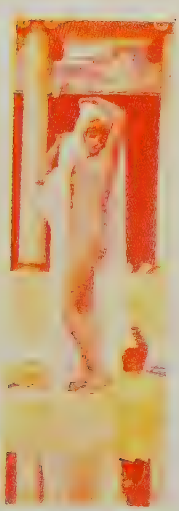
YELLOW



RED



COMPLETE



ORANGE

BLUE

An example of three-colour blocks, showing each block printed in its own ink, and the finished reproduction when the colours are superimposed.

prints. It is, however, in half-tone work that the system has achieved its highest development. The reason for this is that it is apparently an optical impossibility to secure in dyes or pigments, just those printing colours which are desirable, and as a consequence of this, the work always has to be retouched more or less. If now the method of reproduction is photographic, then each triple print must receive the same retouching; but if half-tone blocks are the means of securing the final result, then the retouching, or as it is called, the fine etching has only to be carried out once, and from these blocks or their replicas many thousands of colour prints may be obtained.

The actual process in use for book illustrations thus resembles the half-tone process for black and white work, but with many added difficulties. The negatives are not in this case made upon wet collodion plates, but upon the much more expensive panchromatic dry plates, which demand greater skill on the part of the photographic operator, who has not merely to handle a more difficult medium, but has also to carry out his operations in darkness. The same position of the half-tone screen is not maintained in the three exposures, but the screen is rotated so that the rows of dots run at different angles in the three negatives, and if, as is often the case, he has employed square stops to secure the right dot formation in his negatives, then these stops require to be correctly placed with regard to the half-tone screen for each exposure. The operations of printing the negatives on metal and etching are similar to half-tone, except that the highest skill of the etcher is required to secure such relationship between the sizes of the dots in the three plates that the final colour produced in the printing shall be reasonably exact. The proofing and the printing of the blocks are made with inks which are carefully selected for their colour, permanence, and working qualities, and the three impressions are superimposed in exact register to secure the final result. The order of printing is usually the yellow impression first, then the magenta or red upon this, and finally, the blue. This order is determined by the capacity of the inks, as each film of ink tends to obscure what is underneath if it is not transparent. It is necessary to put the most opaque ink, usually the yellow, at the bottom, and the most transparent at the top.

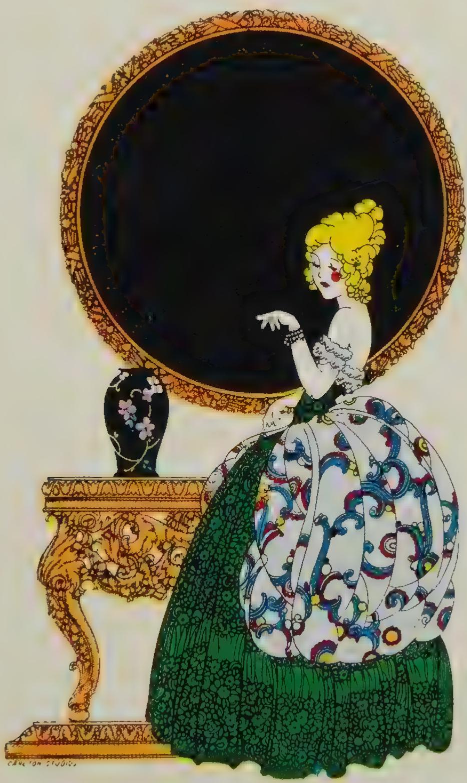
So useful has this system of colour reproduction shown itself, that it has not merely captured work that was formerly done by other and longer methods, but has actually created a large field of usefulness for itself in magazine, technical, and commercial illustration.

With regard to originals for reproduction by the three-colour process, it may be said that anything can be reproduced by it, but at the same time different classes of subjects present very varying difficulties. Bright water-colour sketches without too much fine detail are most readily reproduced, and are also the more satisfactory from the point of view of the customer, because the three-colour print does not differ so much in its general appearance from the water-colour sketch, as it does from an oil-painting, for instance. Solid objects and dark oil paintings are among the more difficult subjects to reproduce, because of the greater contrast of light and shade which they possess. This class of original usually requires the addition of one printing plate in grey or black, which gives a more finished result.

THE USE OF TINTS OR STIPPLES

MECHANICAL Tints, such as Day's Medium, are frequently introduced into line work. They add variety to ordinary zinc line blocks and give them a tone value. By the use of screen tints it is possible to greatly enhance the beauty of a single plate, and also to convert a pen drawing into a well-rounded picture in two or more colours.

The growing demand for illustrations in tone and colour brings a like demand for mechanical tint plates, as this plate-making method affords many savings in the making of the original drawing, in engraving and in printing. Hundreds of patterns are available, and mechanical tint plates can be made to print well on any paper stock.



An example of line and Day's medium tints. It is printed in four colours, black, yellow, red and blue. The Day's medium tint in the red and blue is No. 528

The best results are obtained in the following manner; if a plate is wanted to print in one colour only, have the artist draw a pen drawing, complete in all detail, but leaving the portions to be shaded in pure white surrounded by a fine guide line. Then have him select the different tints from the samples that will be found on the following pages, and indicate the space in which each is to be applied. This indication should be marked in blue pencil, or a piece of tracing paper laid over the drawing, and marked in the same way where the tint is required, stating the number of the tint to be laid. In the case of selecting a tint composed of parallel lines, definite instructions should be given as to the angle at which this tint is to be laid. Unless the artist is familiar with paper and printing, he is apt to select patterns too fine for the purpose. Tell the Process Engraver the kind of paper the plate will be printed upon, and he will select the right medium for proper mechanical practice.

To make colour plates with mechanical tints, the artist should first make an outline or key plate and then overlay the same with fairly transparent paper on which he should indicate the colours he requires. Show this original to the Process Engraver, he being best fitted to determine the number of plates necessary to reproduce the drawing. If the artist is in doubt how to draw the right kind of working original, let him consult the Process Engraver before making it. Show the Process Engraver the paper on which the work is to be printed and leave the rest to him.

Accurate and good tint-laying is a craft that requires care, experience and judgment, and the short description that follows may be of interest to all those who may wish to add variety to their ordinary zinc line blocks, at very little extra cost, and a very considerable saving to themselves in artist's time.

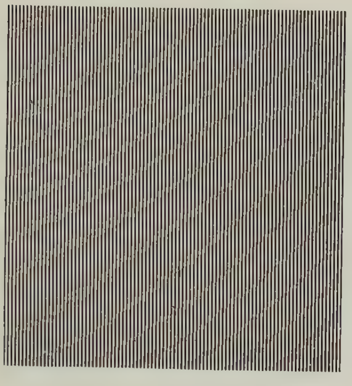
The method of working is, briefly, as follows :

The ordinary negative for a line block is taken, and the print on zinc comes down to the tint-layer; he sees that instructions have been given to lay tint No. 301 on a certain part of the original. The parts on the plate which are to be left plain are then painted out with gum, the plate is dried, the tint-laying celluloid is inked up with lithographic ink, and this tint is transferred to the zinc by means of a roller. The gum is then washed off, and, if another tint has to be laid on a different part of the plate, then the process of painting out, etc., is repeated. Varying combinations can be made by laying one tint on the top of another.

A point worth bearing in mind for customers who do not wish to alter a drawing, or go to the expense of a new one, is that a tint can be laid on the negative as well as on the zinc, and at the same cost.

This means that a solid which could not be dealt with on the print on zinc, could be broken up into a pattern by laying a tint on the negative, but it must be understood that it will be the reverse of the tint chosen, e.g. No. 441 laid on the negative would give the effect of No. 439 approximately.

The cost to the customer of tint-laying is 2d. per square inch, with a minimum of 2s. 4d. The measurement for tint-laying is calculated on the tint portion only, with 14 square inches as a minimum. Artists' work, preparing plates for tint-laying, is charged extra according to the time taken.



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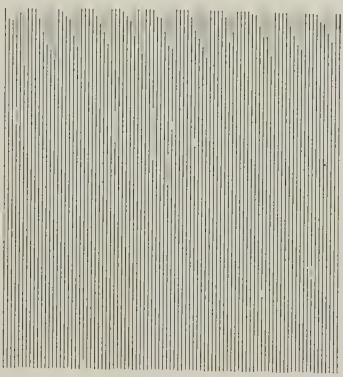

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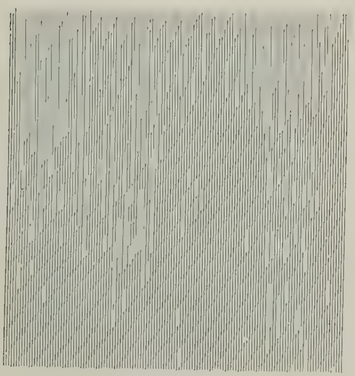

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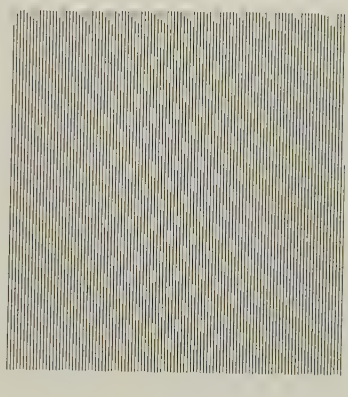

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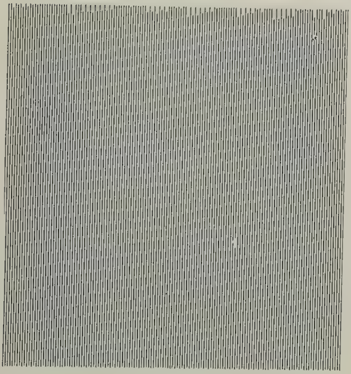

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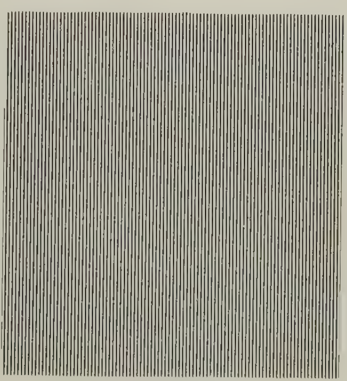

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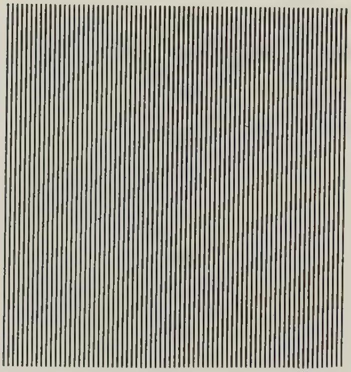

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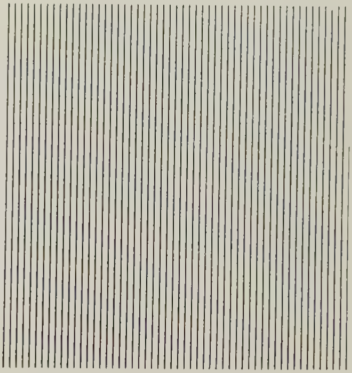

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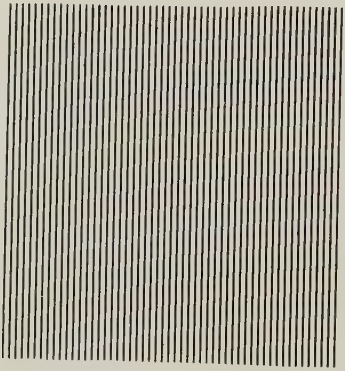

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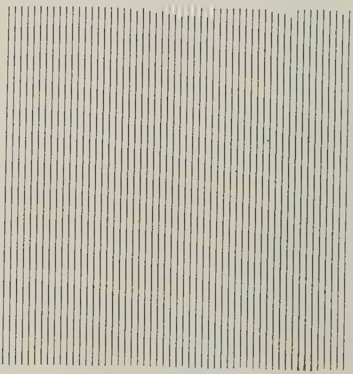

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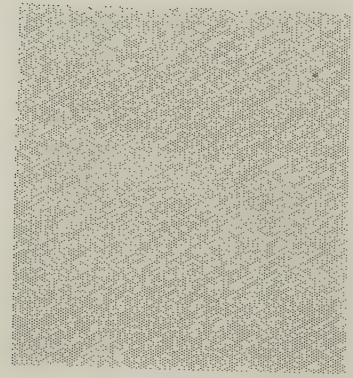

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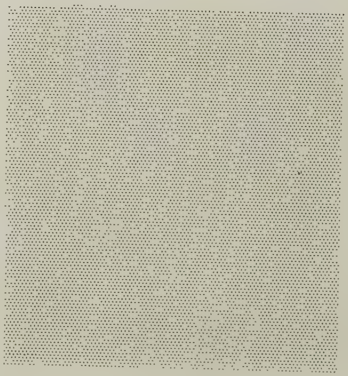

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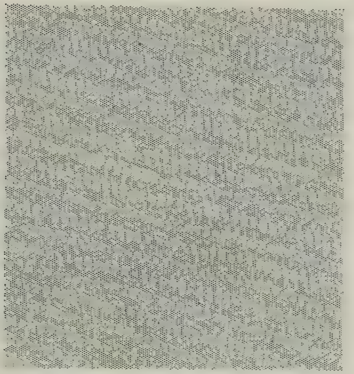

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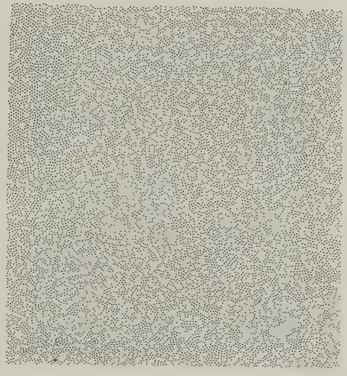

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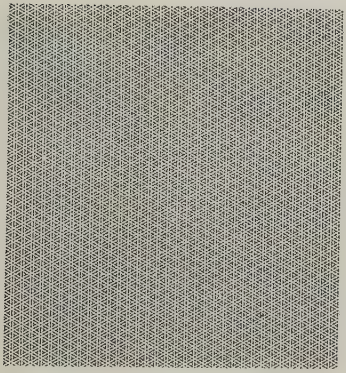

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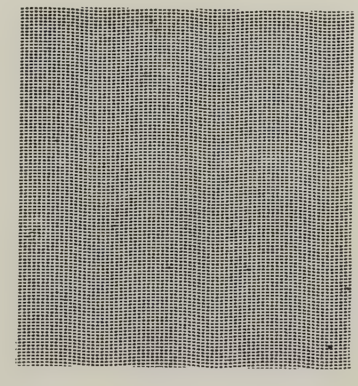

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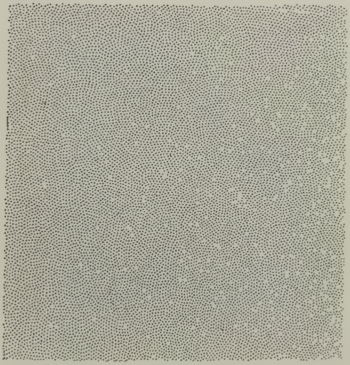

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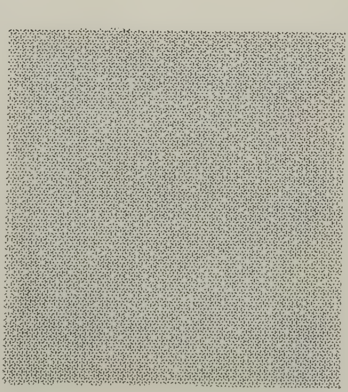

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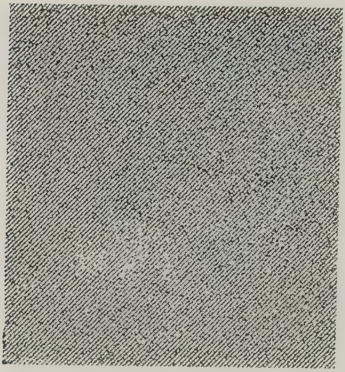

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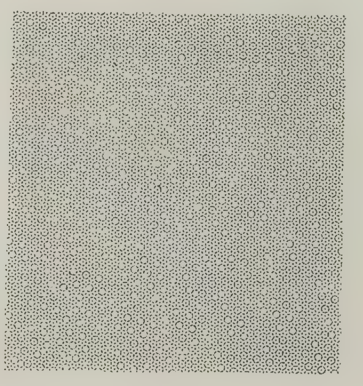

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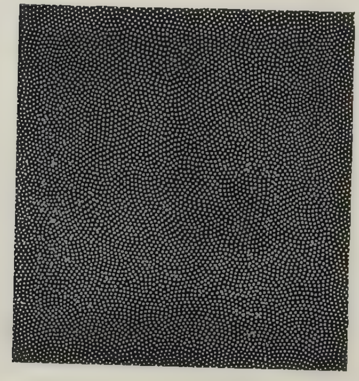

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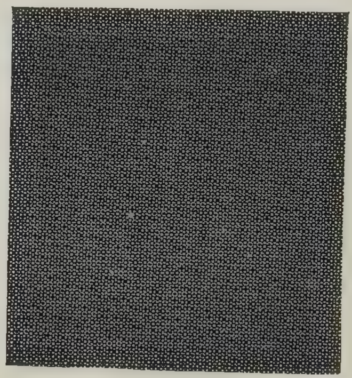

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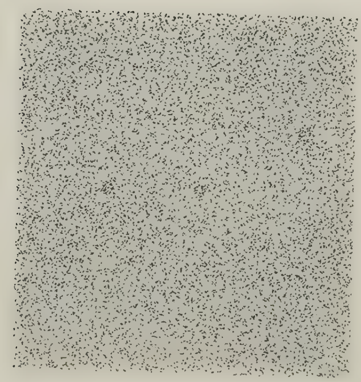

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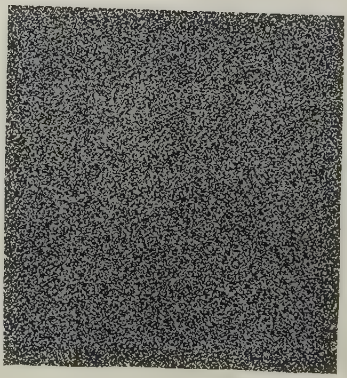

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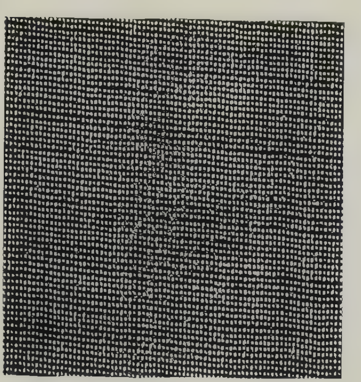

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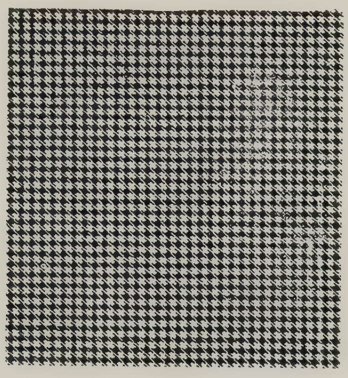

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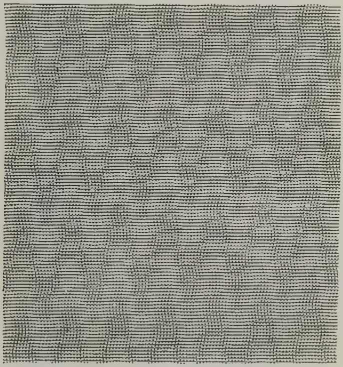

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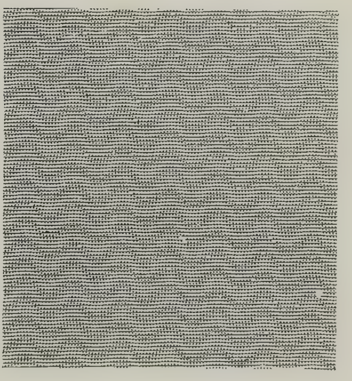

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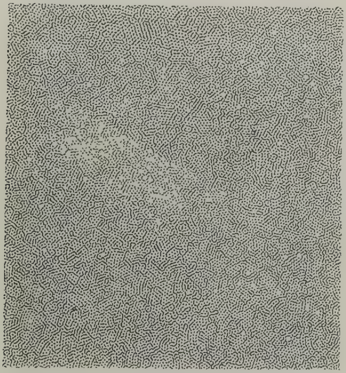

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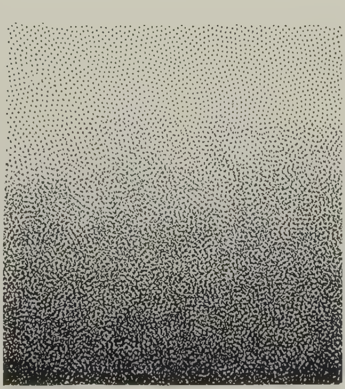

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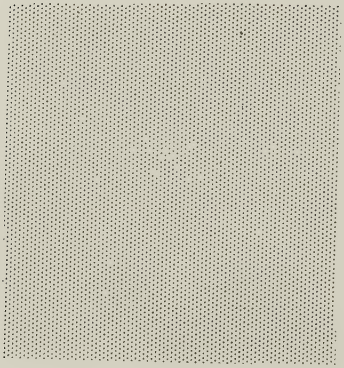

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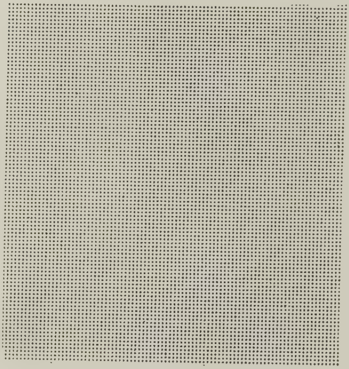

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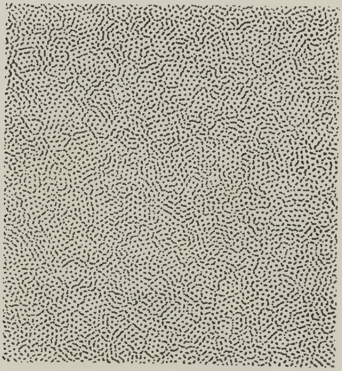

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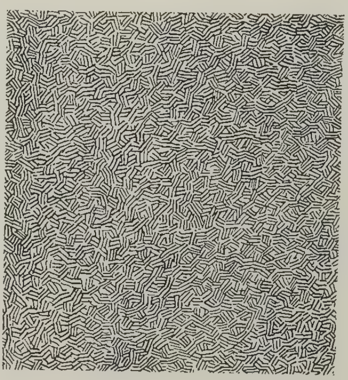

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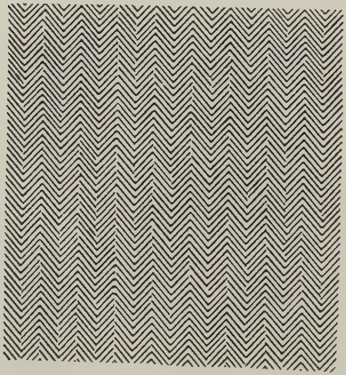

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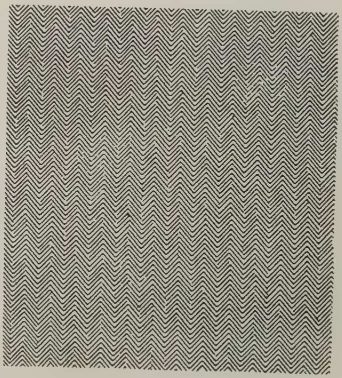

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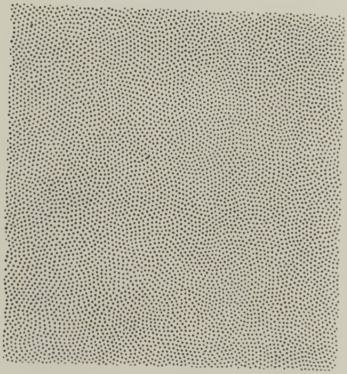

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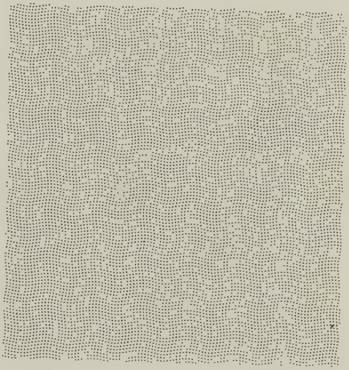

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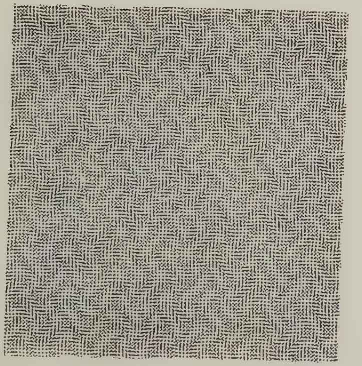

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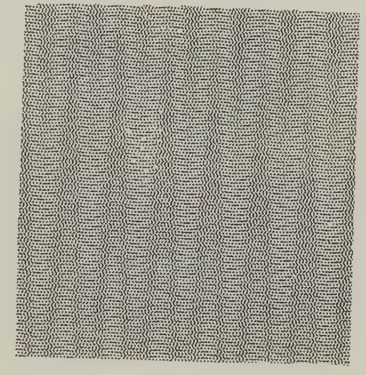

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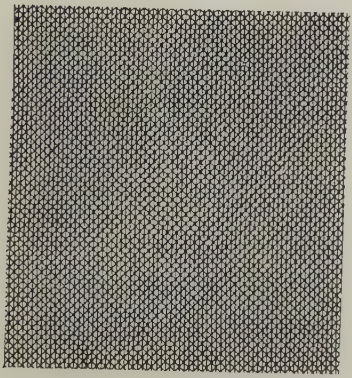

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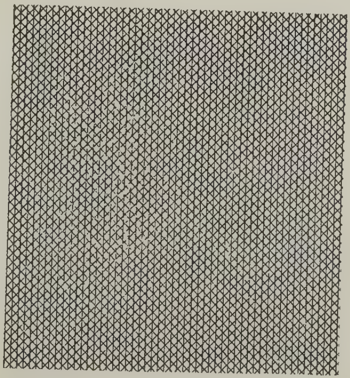
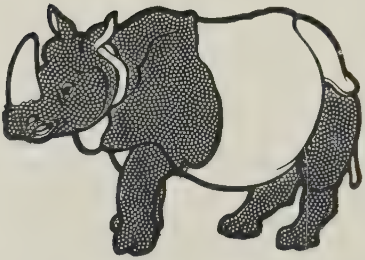


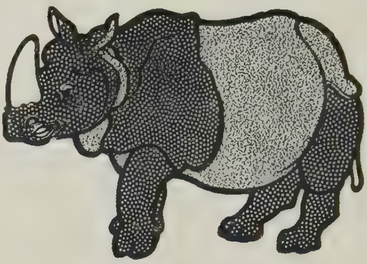
M

E*

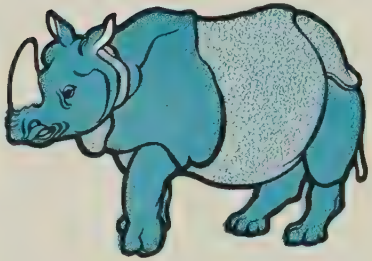
LINE AND TINT BLOCKS



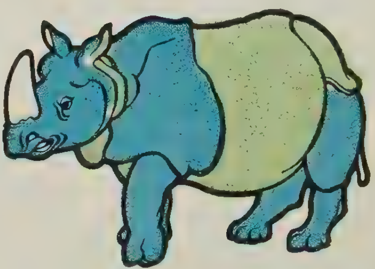
Combined line and one tint



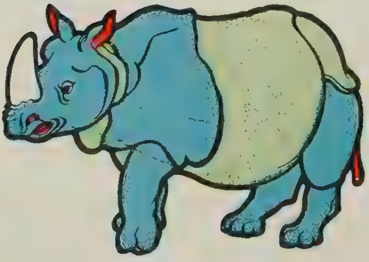
Combined line and two tints



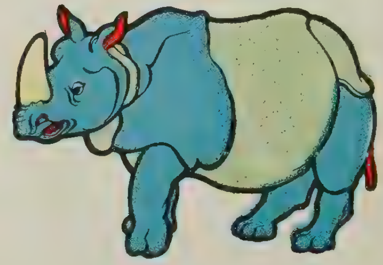
One black line, one colour tint



One black line, two colour tints



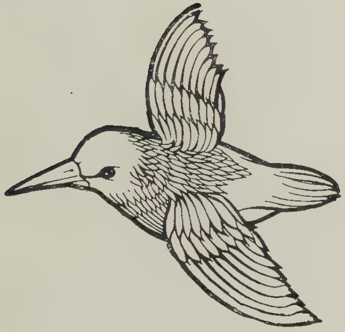
One black line, one red line and
two colour tints



One black line, one red line and
three colour tints

The Day's Medium tints used in the above illustrations are No. 441 on the head, shoulders and hind legs, No. 318 on the body and No. 507 on the horn.

COLOUR LINE BLOCKS



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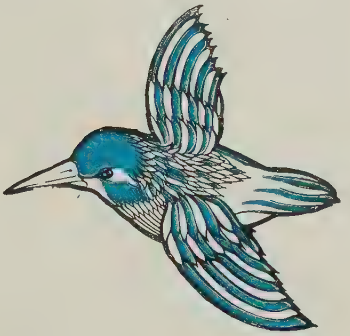

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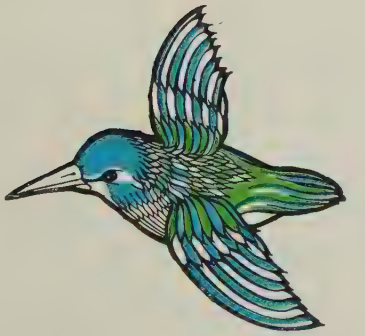

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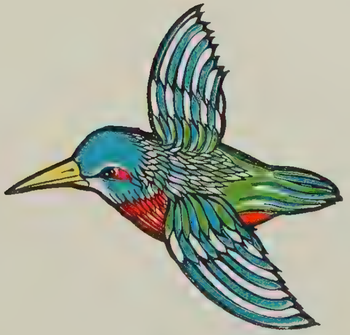


No. 4

Effective colour results can be obtained by using line and flat tints, as illustrated by the pictures on this page.

The best way of doing this kind of work for reproduction is to send the outline drawing, as No. 1, to the block-maker, and get six pulls from him on a good drawing paper. These can be used for experimenting with colour, and the selected ones sent complete, as No. 4.

The charge for this class of work is 1s. 4d. per square inch, including proofing in colour for two colours, with a minimum charge of 18s. 8d. Per colour afterwards 8d. per square inch, with a minimum of 9s. 4d.

SCREENS AND THEIR VALUES

ALL letterpress printing is from relief surfaces; therefore, the image or illustration to be printed must be engraved in relief. In photo-mechanical engraving this relief surface on the engraved printing plate is obtained by means of the use of a screen. The screen breaks up the image on the half-tone negative into a dot formation, which will produce the variations of tone on the half-tone plate when engraved.

The half-tone screen performs but one function in the making of a half-tone, namely, by means of its ruling it cuts up the reproduction into that tiny dot formation which is the distinguishing feature of the half-tone process.

The half-tone screen is composed of two pieces of plate glass, each ruled on one side with opaque parallel lines running diagonally from right to left on one piece, and left to right on the other. The two ruled surfaces are brought face to face and sealed—the opaque lines crossing at right angles—thus making an optical screen, or grating, leaving transparent square apertures between the lines. The light, after having passed through the lens, passes on to the sensitive photographic plate through these apertures breaking up the image to be reproduced into a number of dots. Each aperture registers its fraction of the picture on the photographic plate in the camera.

Half-tone screens vary in size and in the number of rulings to the inch. In ordinary use the usual number of rulings to the square inch of the different screens is 45, 55, 65, 85, 100, 110, 120, 133, 150, 175, 200, and 225.

The choice of the screen to be used in the engraving of a half-tone block is a very important matter; on the right selection depends the success of the printed result, as the screen determines the pictorial texture of the plate and controls its mechanical structure.

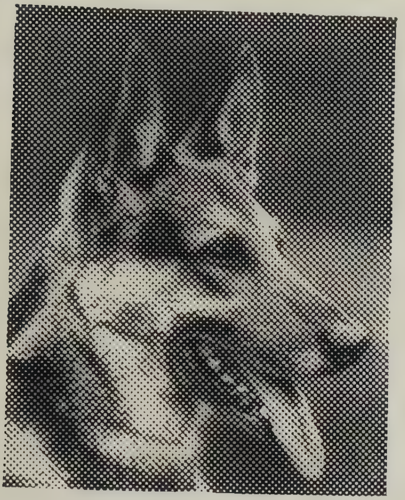
There are many different conditions to be considered; the paper stock on which the plate will be printed; the question of duplicating—whether the duplicates are to be stereotypes or electrotypes.

Since practice in modern printing calls for the duplicating of half-tones by means of stereotyping and electrotyping, the structure of the half-tone plate must be of such a character as to permit the successful operation of the process involved.

The ideal half-tone, from the standpoint of the stereotyper and the electrotyper, is the one in which the dots are clean-cut, sharp, of sufficient depth to permit moulding, and clean at the bottom. This applies particularly to the middle-tones and shadows, namely, the darker portions of the plate. These are the trouble makers.

To ensure the best results, consult the engraver before the plates are made. It makes no difference to him which screen is chosen. Be sure to advise him exactly what kind of paper you have selected for the work and, better still, send him a sample of the paper.

How to select the proper screen puzzles most people. There is however, a simple rule which can be easily applied. It is, select a screen as fine as possible for pictorial value, and as coarse as possible for mechanical requirements. If in doubt, select the coarser screen.



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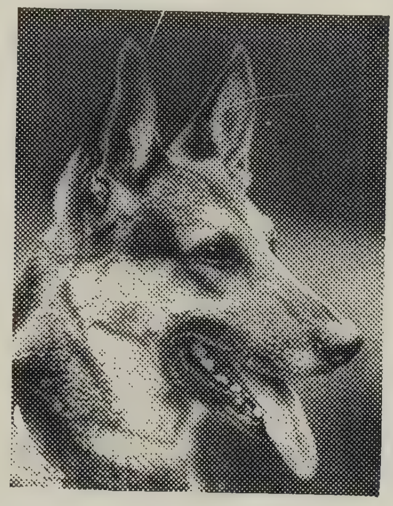

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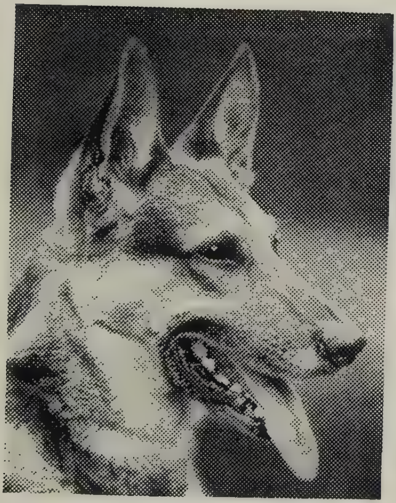

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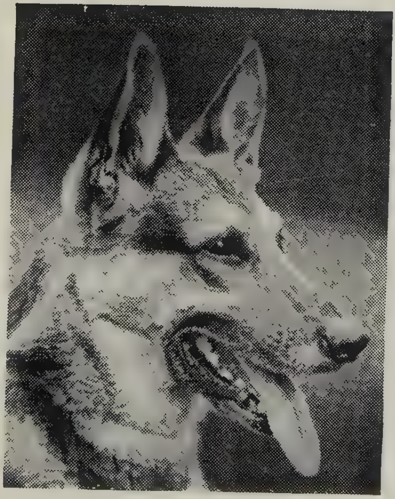
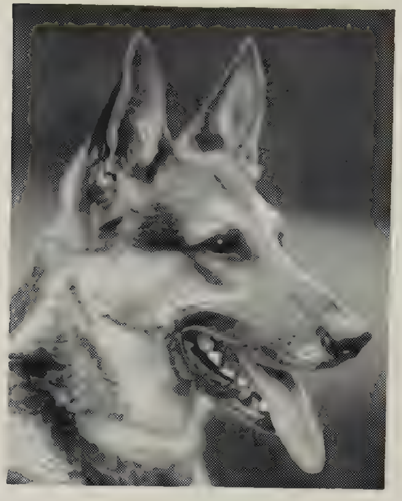


85

The four screens illustrated on this page are suitable for news stocks and cheap printings. They stereotype and electrotype well. It is not advisable to cast an ordinary stereotype from a plate that is engraved with a higher screen than 85.



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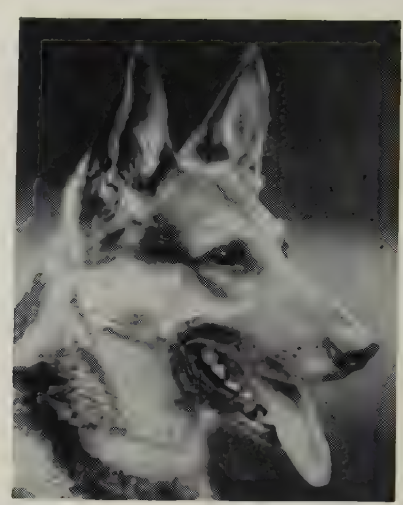

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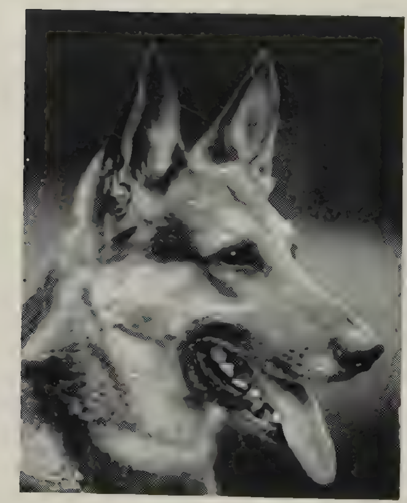
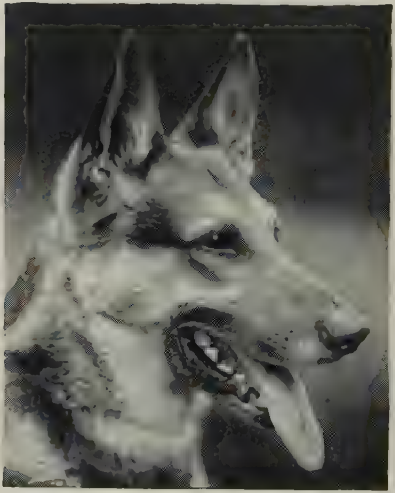
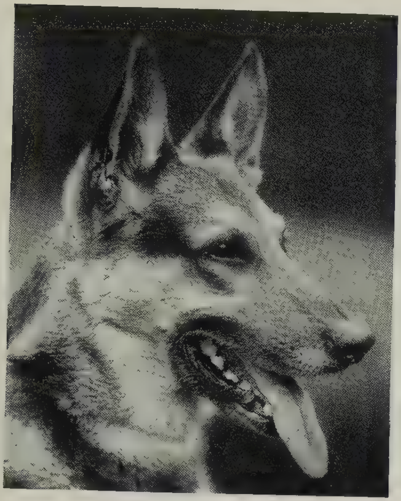


120



133

The four screens illustrated on this page are suitable for good M.F. papers, super-calendered papers, and imitation arts. The 120 screen is the best to use for magazine work. The 133 screen is the most serviceable for commercial illustration. They electrotype well and may be used for fine-art hard metal stereotyping.



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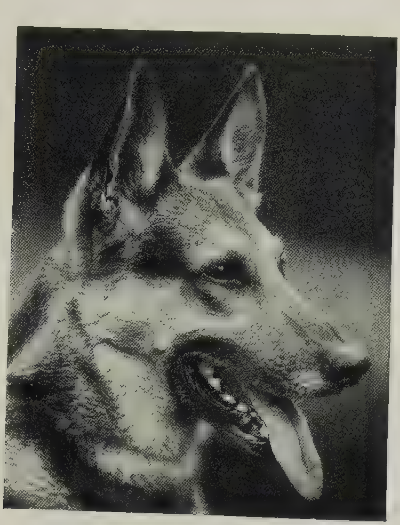
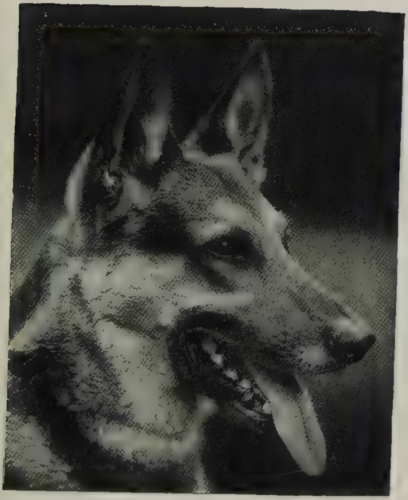


175



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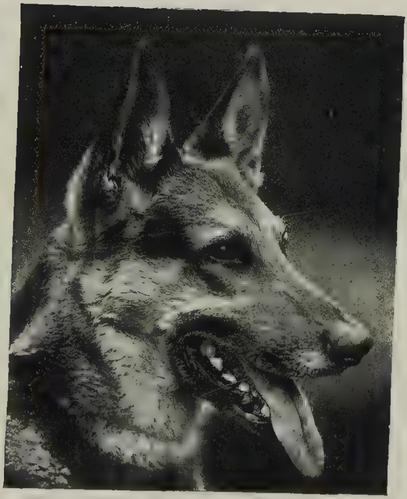


225

Screens 150 and 175 should be used for best class of catalogue work and all illustrations where it is necessary to preserve detail. The best class of art and enamel-coated papers only should be used in printing. If electrotyped, the lead-moulded process should be employed. Screens 200 and 225 are used for special classes of work, such as scientific illustration, where accuracy of detail is essential. It is not advisable to electrotype plates that have been engraved with a finer screen than 150. If duplicates are required, duplicate original blocks should be ordered.

ORIGINALS

THEIR PREPARATION AND SELECTION

TO the user of photo-process engraving nothing is more important than the choice of the original to be sent to the engraver to be reproduced. On the right selection and preparation of the original the final result is largely dependent. This is a matter that is not sufficiently recognized or attended to. On the contrary, it is more often thought that any original can be reproduced satisfactorily, and when the result is indifferent—the natural effect of a badly chosen original—the engraver is blamed for being an indifferent craftsman. This article has been written with the object of helping the user of photo-process engraving to realize the limitations of the process engraver and to rightly incept his original.

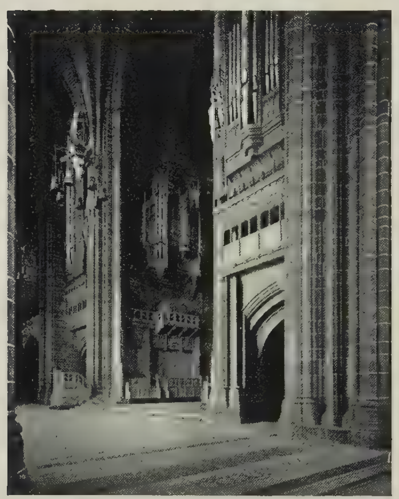


Fig. 1.

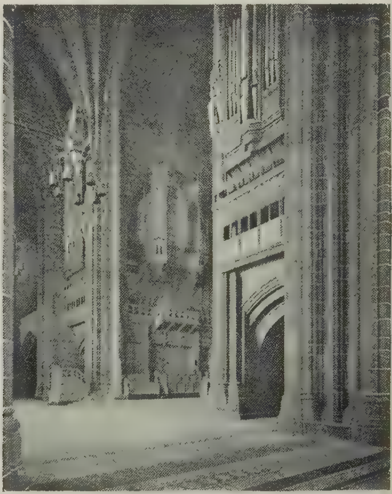


Fig. 2.

Many subjects, or originals, that a few years ago would have been difficult for the photo-engraver to have reproduced, can at the present day be undertaken with comparative ease and certainty. But, even so, there is in the process for black and white reproduction certain limitations, which, in practice, mean that of two or three varying types of originals from the same subject a better reproduction can be made from one than from the others. The manner in which it is possible for the originals to thus vary may be said to be in three particulars : that of colour, gradation of tone, and the nature or texture of the surface. The difficulties of reproduction will accordingly increase, as the originals fail to reach an accepted standard of quality in either one or all of these particulars. The required standard is determined principally by the degree of sensitiveness of the photographic plate, and by the electric arc lamps used for illuminating the copy.

For black and white reproduction a salt known as silver iodide is most generally used for sensitizing purposes, and it is one of the properties of this salt that it is completely insensitive to the red end of the spectrum, and extremely sensitive to the ultra-violet rays or blue end of the spectrum. Hence it is that an original becomes more difficult to reproduce as its prevailing colour tends towards a red or reddish tone, and the reason why it is that reds reproduce darker and blues lighter than the copy.

This may be more easily understood from the illustrations, in which Fig. 1 is a reproduction from a reddish coloured untoned P.O.P. print, Fig. 2 from a ferro-prussiate blue print, and Fig. 3 from a purple-toned P.O.P. print upon a glossy surface.

Although the colour of the original of Fig. 1 was not a pure lake, or spectrum red, it may be taken to roughly represent one end of the spectrum, and Fig. 2 the other, or blue end. On comparing these illustrations one with the other, it may be seen that whilst a full range of tone has been obtained in the lighter portions only of Fig. 1, the detail in the shadows, when compared with Fig. 3, is altogether missing. In Fig. 2 the reverse is noticeable, for the detail in the shadows approaches more nearly to that of Fig. 3, whilst the detail in the lighter portion is altogether wanting. The result shown in Fig. 3 is obtained by choosing for the original a purple-toned P.O.P. print, the colour of which may be taken to be a blend of the intermediate colours existing between the extremes of the red and violet ends of the spectrum, with the practical result that the best portions of each of Fig. 1 and Fig. 2 are retained.

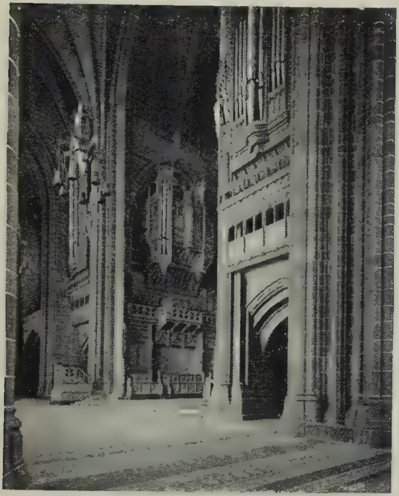


Fig. 3.

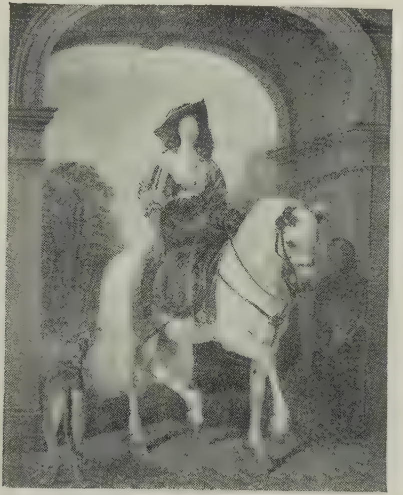


Fig. 4.

A purple-toned P.O.P. print is, therefore, generally accepted as the standard for obtaining the best result for black and white reproduction. The colour of the original must, however, run consistently throughout the subject and not vary, as would be the case with an overtoned or faded P.O.P. print; for, as the colour of the original departs from this standard, either wholly or in part, so must the quality of the reproduction gradually tend towards the examples either of Fig. 1 or Fig. 2.

The quality of the original is further determined by the gradation of tone, which must similarly run consistently throughout the subject, exhibiting a full range of detail from the highest lights to the deepest darks. As the detail and tone is thus more clearly defined, especially in the lighter tones, so will the quality of the reproduction increase proportionately in value.

Next of importance is the texture of the surface of the original, which is governed by the necessity for using at least two electric arc lights for illuminating purposes. It has been found that the glossy surface of a P.O.P. print or a smooth velox bromide print offers an ideal standard for producing a first-class reproduction. Similarly as the texture of the surface increases in roughness, so the quality of the reproduction will decrease, which may be observed by comparing Fig. 4 with Fig. 5.

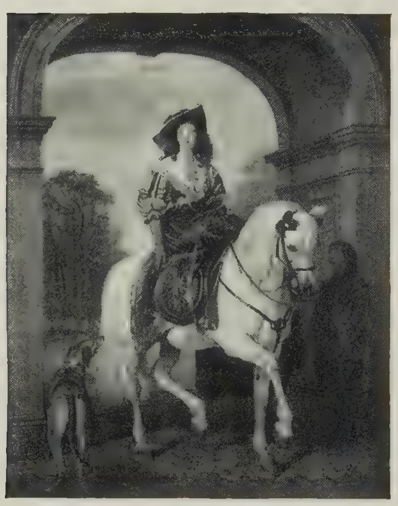


Fig. 5.

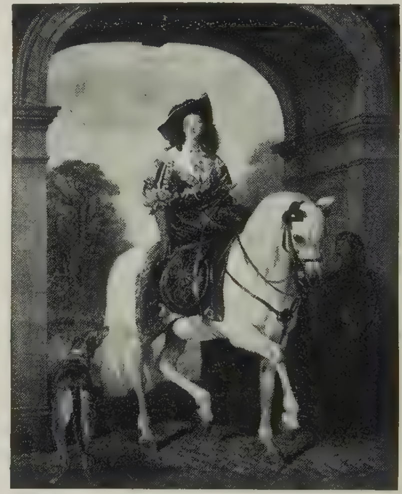


Fig. 6.

An exception occurs, however, in the case of a carbon print, which, although possessing a surface considerably more smooth than that of a rough bromide paper, gives a result far more unsatisfactory when reproduced by the half-tone process; indeed, it provides one of the worst of copies for reproduction (Fig. 6).

Of all the varying types of originals that have been found to possess the most suitable qualities for reproduction, the following may be taken in sequence as their order of merit :

(a) A monochrome drawing in flatted oil colour, in which ivory black has been blended with a little warm colour, such as sepia, and used in conjunction with flake white.

(b) A monochrome drawing in body water colour, where lamp-black has been used in conjunction with chinese white, and a special process white for the high lights only.

(c) A smooth surface velox bromide print.
(d) A purple-toned P.O.P. print with an enamelled surface.
(e) A bromide print, with smooth or glossy surface.

On the other hand, those which have been found unsuitable are:

(f) Rough bromide prints.
(g) Steel engravings.
(h) Wood engravings.
(i) Faded or reddish-toned P.O.P. prints.
(j) Half-tone prints.
(k) Carbon prints.

The reason why prints from engravings generally provide unsatisfactory copy for reproduction by the half-tone process may be easily understood by reference to Figs. 7 (wood engraving), 8 (steel engraving), and 9 (half-tone print), in which are shown the watered silk and other patterns formed through the use of the half-tone cross-line screen. Should it become necessary to retouch either a drawing or a photograph, it is advisable that the colour of the medium should resemble as closely as possible the colour of the original. Chinese white and lamp-black may be used for the purpose of forming a body colour, and the colour of the original matched by adding brown madder, sepia, or indian red. Owing to the peculiar properties possessed by chinese white in photographing darker than white paper, it is obvious that it should not be used for the high lights. There are special whites made for this purpose, such as albanine, or special process white. The following illustrations, in which special process white has been used for Fig. 11, and chinese white for Fig. 10, clearly show the advantage of the former over the latter.

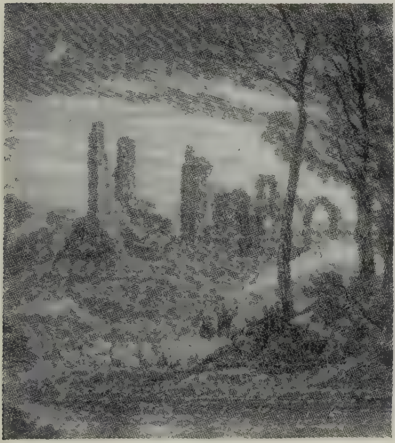


Fig. 7.

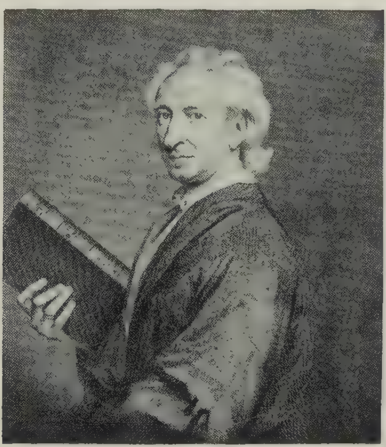


Fig. 8.

There are a large number of artists whose work could be reproduced much more effectively if this fact were not generally overlooked.

Artists not infrequently use a thick layer of white in the high lights for the purpose of obtaining an effect in relief, which is obtained through

Fig. 9.

the drawings being usually viewed with a sidelight. Such an effect is, however, entirely lost in the reproduction because the two electric arc lights illuminate equally both sides of the relief. With objects in higher relief there will also be two distinct shadows thrown, one from each arclight, which, in the reproduction, will appear most prominent and objectionable.

With many of the limitations mentioned, there are ways and means of overcoming the difficulties, either partially or wholly, by the adoption of special methods, or by the aid of specially skilled craftsmen. An example of this may be seen in the following illustrations, in which Fig. 12 has been taken from a wood carving in high relief by the usual process, and Fig. 13 in which the reproduction has been obtained by adopting special methods.

It may also happen that a subject originally intended for reproduction by the half-tone process would give a more faithful result, or become more suitable to the requirements of the printer, if some other process were adopted. A print from a wood engraving, for example, would be preferable if reproduced by the line process, which is clearly demonstrated by comparing Fig. 7 with Fig. 14.

Many artists obtain an effect when drawing in line by using a thin grey ink for the lighter portions of their work, or by making use of a rough surface to obtain a broken line. It is impossible to reproduce the former effect by the usual line process, and even if a facsimile reproduction is made of the latter, it will have the effect, when printed, of a badly over-etched block; as it will most likely be printed upon a smooth-coated surface paper. The most suitable drawings for reproduction by the line process are those in which every line, however coarse or fine, is clear, open, and distinctly black, and will remain so under the powerful illumination of two electric arc lights.

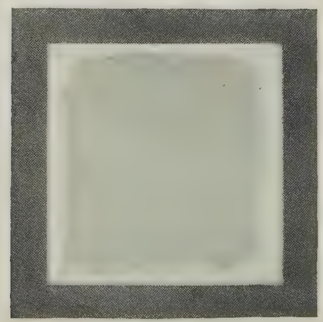


Fig. 10.

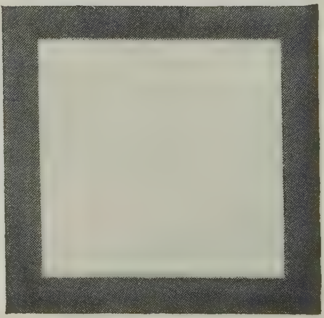


Fig. 11.

All originals to be reproduced by line plates should be free from dirt, and also free from conflicting elements such as unnecessary pencil lines and similar defects.

Artists, when composing a line drawing, lay out their subject with pencil lines. These pencil lines should be removed after the work is inked in. When they are heavy and dark they are apt to become confused with the ink lines of the picture and reproduce with them. The effect of the reproduction is that the values of the lines are destroyed by introducing foreign elements which make them heavy and dirty. If the artist has used a blue pencil in his layout it will cause less difficulty than black, because blue photographs almost as light as white, and it will, automatically, photograph out when the line negative is made.

An erroneous impression exists, owing to the fact that faulty copy can be taken out of the plates by routing and tooling, as to what will and what will not reproduce. A great deal of the trouble lies in line originals which have been altered by the addition of pasted paper. When pasted additions are thin and clearly applied they present little or no difficulty. It should be remembered that these additional thicknesses will cast shadows when lighted by the electric arc lamps and such shadows reproduce as though they were drawn lines. When patches are close to actual lines, these shadows produce "paste lines" which conflict with and impair the true lines of the drawing. These "paste lines" must be tooled away, which does not improve the appearance of the drawn line.

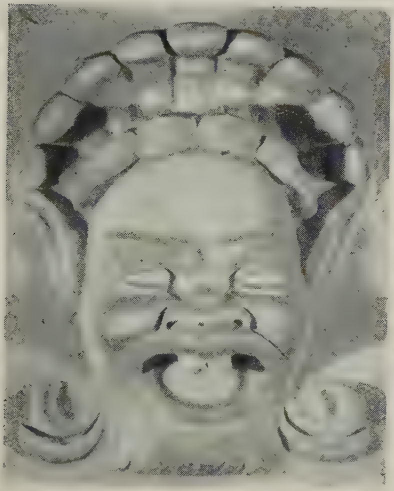


Fig. 12.

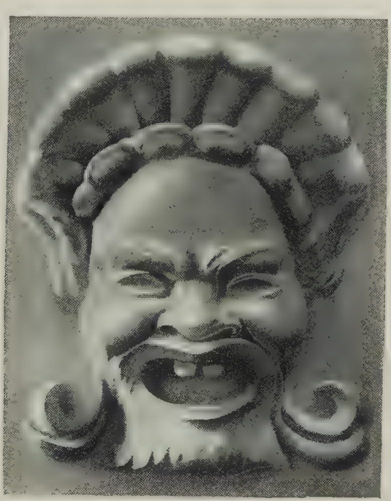


Fig. 13.

Black and white line copy is to be preferred, although dark brown or red may be used because their effect when photographing is the same as black. Every part of a line original should be a solid colour and not a tone of, or shade of, the ink or paint used in its construction. The ink or paint should not be broken down but used in its full colour strength. If the colour of the original is not black or of a similar non-actinic colour, separation negatives will have to be made. The actinic colours, such as blue and violet, photograph in almost the same intensity as white paper and become lost unless held with colour filters and colour-sensitive plates. Those parts of the original which are not solid must be reproduced by the half-tone process.

Photographic prints used as line originals should be clean, sharp, and of strong black and white contrast. Copies of book pages, old prints, and similar subjects must be absolutely sharp and distinct if good results are expected from the engraved plates.

Line reproduction from blue prints require separation negatives, and even then the results will be faulty unless the blue prints are sharp and clear and white.

A typewritten letter in the usual violet colour offers another example from which it is impossible, by the ordinary line process, to reproduce effectively, the reason and result being similar to the blue print in Fig. 2. Typewritten letters should, therefore, be typed in black, or the violet letter should be made black by the artist retoucher; where this is impossible, special colour sensitive plates must be used.

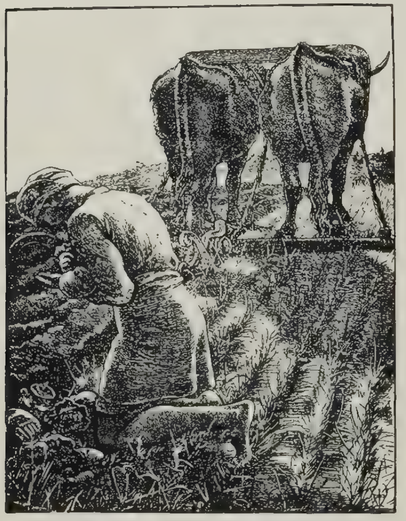


Fig. 14.

As before mentioned, many of the difficulties attending black and white reproduction arise from the use of silver iodide for sensitizing purposes. In three- and four-colour work these difficulties are largely overcome by the use of special colour filters, and plates which are made specially sensitive to the whole or any portion of the spectrum. What applies, however, in the foregoing to the reproduction of black and white with regard to detail and texture will apply with equal force to colour. The greatest limitations arise through the impossibility of producing dyes for the printing inks which shall be permanent. That such dyes can be produced by the manufacturer to resemble very closely the scientific hues necessary is evidenced by the excellent examples of such of the additive processes as Lumiére's auto-chrome process; but for practical and commercial printing purposes they are valueless because of their fugitive properties when exposed to prolonged daylight. This fact will account, in a very great measure, for the difficulty of reproducing vivid greens and violets. Neutral greys are other difficult colours to reproduce for entirely another reason, which is, that the balance of each of the constituent colours has to be very exact; any variation in the final printing will be sufficient to transform a neutral grey into a colour in which either the yellow, red, or blue is distinctly dominant above all others. It is advisable in such cases to adopt a fourth printing; better results are usually obtainable with four printings than from three, particularly so when grey tones predominate or with heavy strong subjects.

HOW TO ORDER BLOCKS

TOO much care cannot be taken in the preparation and selection of the original to be reproduced. In the preceding chapters the various processes in half-tone engraving have been dealt with in detail, and the reasons for the following suggestions will be readily understood.

The original to be engraved should be prepared with the full knowledge it is to play in the successful production of a printing plate. Too much is taken for granted by many users of process engraving, and unsatisfactory plates are due primarily to the original.

Copy should be clean and flat, black and white, and in proper proportion. This applies equally to originals for line plates and half-tones, and deviation will involve additional work and expense.

The following are a few points to be remembered when preparing originals and ordering blocks :

When commissioning an artist to prepare an original, whether line, wash drawing for half-tone, or full colour for half-tone colour, tell him the size the subject will be reproduced and instruct him to make the original not more than twice that size. If the subject is for newspaper work, the detail should be less and the shading more open.

Photographic originals to be reproduced should allow at least one-third reduction.

Photographic originals sent for retouching should be overlaid with tracing paper, and the instructions for the artist's work clearly indicated on the overlay.

Never fasten your instructions to a photographic original with a metal clip. The fastener imbeds itself into the delicate gelatine surface of the photograph and its imprint will reproduce on the engraving and spoil the plate. Remember the photo-engraver's camera will faithfully reproduce the original, and if this has been mishandled in any way all imperfections will appear in the finished plate.

Never write any instructions on the back of an unmounted photograph or on original drawn on cartridge paper. The pressure in writing indents the paper and causes raised lines to show on the front of the original, which will reproduce and show on the finished plate. If compelled to write on the back of an original, use a soft pencil and press as lightly as possible.

When sending to your engraver a photographic print to be retouched, send a duplicate print. This second print acts as a guide to the retouching artist and allows him to carry out his work quicker and not to lose detail, as he is apt to do when heavy retouching is given to an original, This point is important when retouching mechanical subjects.

Never send a photograph to your engraver in a tube, unless it is too large to pack flat. Send all originals flat when possible, well protected for transit through the post. If the original is too large for the post and you are compelled to use a tube, be sure the picture is rolled on the outside. Rolling cracks the surface. " Roll them with the print out and you keep the cracks out."

Photographs when taken specially for reproduction, especially mechanical, which will require retouching, should be larger than the required plate. The photographic print being larger allows more freedom to the artist, and ensures a smoother and more natural result when reproduced. Originals invariably gain by a slight reduction. Enlargement coarsens.

Photographic originals should be of a shape to suit the space they are to fill when reproduced, i.e., if they are to fill a horizontal space they should not be taken vertically, and vice versa.

The photographic print should be on a glossy-surfaced paper and not a matt or rough surface. The tone of the print should be black and white or a chocolate brown. Red and very bluish tones should be avoided.

Wash drawings for half-tone reproductions should be drawn in pure washes of indian ink, with a touch of sepia to prevent the lighter washes becoming bluish. It is not advisable to use body colour for this class of original, nor to employ mixed methods and use pure washes in one part and body colour in another.

Half-tone copy should be perfectly clean. This is very essential, because routing and tooling are not always practicable on half-tones, and no means exist for removal of spots or imperfections, except to reshape the dots. This nearly always shows when imperfections are prominent, and therefore half-tone copy should be free from imperfections.

Retouching photographic originals by brush or air brush should be done with a colour which corresponds exactly with that of the original. If a photograph is of a warm black and retouching is done in a cold grey, the latter will reproduce lighter than the warm tones of the original and appear as a different tone. This is especially true in spotting, where small white specks on the copy are touched in with black or grey. Unless the colour of the medium corresponds with the colour of the original print, the retouched spots will show almost as clearly as though they had never been retouched.

Try to avoid using a half-tone impression as an original, as it is most unsatisfactory. The screen already in the impression, when copied again through the half-tone screen, cross-hatches and makes a woolly pattern.

If the original has been previously reproduced and the new instructions differ from the old ones, be sure and erase the old instructions so as to avoid confusion.

State time for delivery. Don't rush the engraver. Remember, a reasonable time for the work will avoid disappointment and allow of the best craftsmanship.

Give full and clear instructions and leave nothing to guess work. Time and money will be saved.

If unfamiliar with process work and the engraver's requirements, give full details of the use and purpose of the work and trust to the engraver's experience and judgment.

If the block is to be stereotyped or electrotyped, state which clearly on your order. Do not, in such instances, order a " duplicate." A duplicate is a second plate from the same original.

Care and attention should be given when indicating the size work is required. State definitely whether the size is for length or width. Use arrows in connection with figures.

Dimension marks indicating size need be on one dimension only, unless plates are to be cut or set up together. In such instances it is advisable to mark such copies in the following manner : " Reduce to six inches wide and cut to eight inches high." This indicates to the engraver that the subject may be cut to give the size desired.

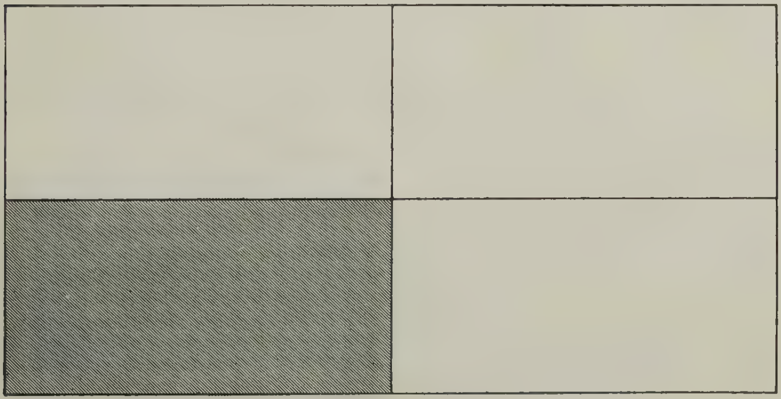
When negatives are to be combined, both dimensions of the finished plate should be given, for example : " Reduce each to four inches wide and set up to six inches high." A sketch or guide should be supplied, showing the manner in which such negatives are to be combined.

If both dimensions are given, state if these are to be exceeded, or if the plate may be trimmed to give the required size.

It is always advisable to give the size of the longest dimension. Originals which are long and narrow, for instance, a block for a border, 2½ ins. by 12 ins., should be marked for reduction to 12 ins., not to a width of 2½ ins., as a slight error in measuring on the short dimension would make a great difference in the size of the long one.

Dimensions for ellipses should be given both for width and depth, unless the copy is drawn in the shape wished for.

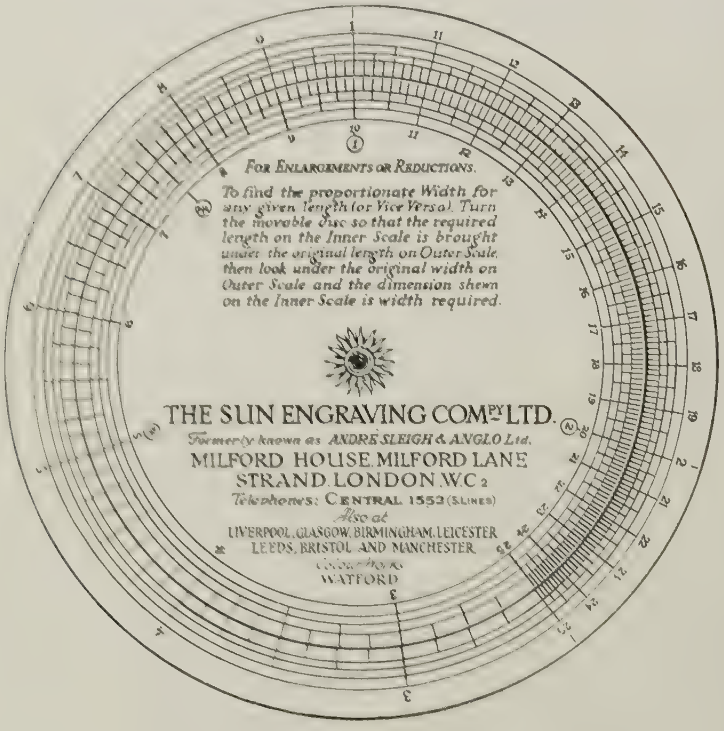
It is customary among process engravers to consider the dimension first given to mean the width desired. Thus a size marked 10 ins. by 8 ins. would be taken to mean 10 ins. wide and 8 ins. high. Width is the



HALF SIZE

term given to the measurement from left to right or horizontally. Height or depth is the term given for the measurement from top to bottom or vertically.

When ordering blocks, do not use the words "half size" or "half area." The engraver always takes "half size" or "quarter size" to refer to the lineal measurement. The use of the expression "half size" when ordering plates is a source of misunderstanding. Some people, by this term, mean the area of the plate; others refer to the lineal dimension.



For Enlargements or Reductions.

To find the proportionate Width for any given length (or Vice Versa). Turn the movable disc so that the required length on the Inner Scale is brought under the original length on Outer Scale, then look under the original width on Outer Scale and the dimension shewn on the Inner Scale is width required.

THE SUN ENGRAVING COMPY LTD.
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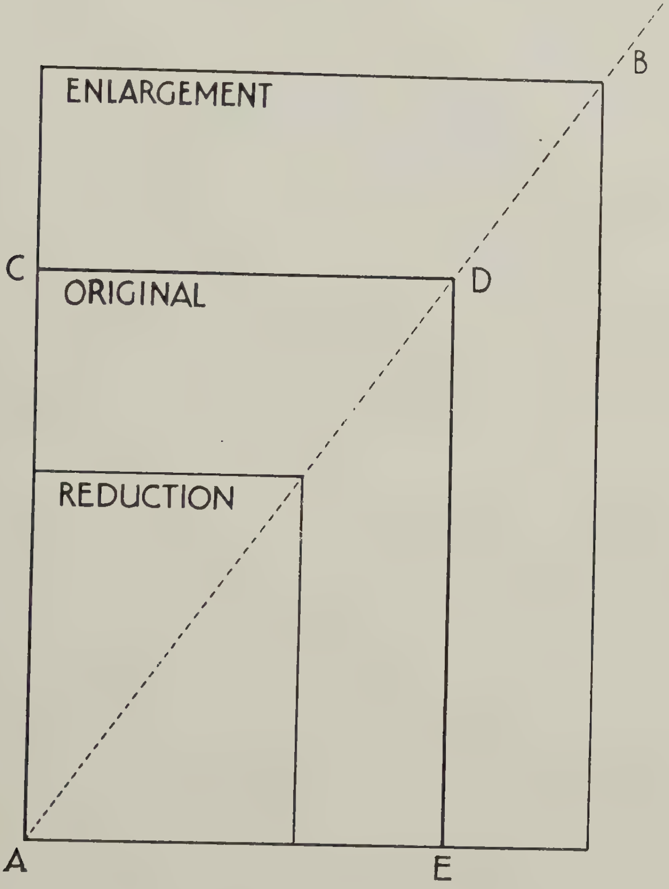
The diagram on the previous page (p. 37) indicates that "half lineal" is equal to "quarter area":

The shaded portion is half size lineal, and equals one-quarter area.

It should be borne in mind that proportions remain unchanged in photographic reduction or enlargement. An original which is 10 ins. wide and 8 ins. high will remain in this relative proportion through all changes of reduction or enlargement. Means for determining relative proportions are available in the form of mechanical devices, such as the "Sun" calculator here reproduced.

The simplest and most-used means is the diagonal line. If the extreme areas of a line copy are indicated by border lines, a diagonal is drawn by means of a straight edge or string, from a lower corner to the opposite upper corner. The size to which the original is to be reduced or enlarged is measured off on the base line from the point where it is joined by the diagonal. The depth in the scale of reduction or enlargement will be found by measuring the vertical distance from the base line to the diagonal at the end of the new line of measurement. The accompanying diagram illustrates this method.



Arithmetical proportion may also be used. We will call the dimensions of the original rectangle WIDTH and DEPTH (which should be ascertained by measurement), and the dimensions of the new rectangle width and depth. We will suppose the width of the new rectangle is decided, and you wish to find the corresponding depth. This is done by the following calculation :

$$\text{depth} = \frac{\text{width} \times \text{DEPTH}}{\text{WIDTH}}$$

Or if the depth is known and the width is required, it is stated as :

$$\text{width} = \frac{\text{depth} \times \text{WIDTH}}{\text{DEPTH}}$$

The order of these words is easily remembered—that is : depth, width, DEPTH, WIDTH, or : width, depth, WIDTH, DEPTH.

As an example, suppose you have a photograph 14 ins. deep by 8 ins. wide, and want to produce a block 3 ins. wide. To find the depth, take the first formula, as follows :

$$\text{depth} = \frac{3 \times 14}{8} = 5\tfrac{1}{4} \text{ ins.}$$

The method described above is exactly the same whether the new rectangle is increased or reduced from the original one.

To execute an order in the most economical and efficient way the following is the information the engraver should have clearly given to him :

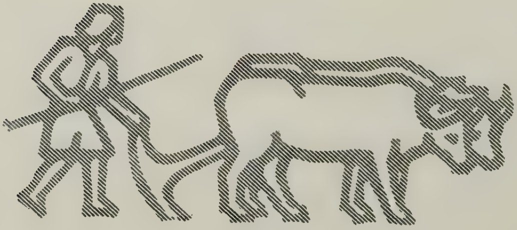
Size of block, stated in inches.

Portion of original to be included in block clearly marked.

Screen to be used. Failing this, a sample of the paper the block is to be printed upon.

Shape of block, whether squared up, oval, or circle.

Finish of block, if half-tone, whether line finished, raw edge finished, vignetted or cut-out background; whether mounted or unmounted.



THE SCHEDULE

ILLUSTRATED

THE following pages contain a reprint of the Schedule of Minimum Prices adopted by the Federation of Master Process Engravers. They also contain a Ready Reckoner giving the cost of engraved plates in each class of work up to and including an area of 120 square inches, beyond which size special allowances are made.

. . .

The prices in the Schedule are for reproduction of copies exactly as received, and are the minimum, below which no work can be accepted. Special classes of work, or any alterations to be made to originals, will be charged according to the extra cost incurred.

. . .

Each class of work specified in the Schedule is distinctly defined by its accompanying illustration. This feature of the Compendium will be found both interesting and serviceable. The user of process-engraving will be able to visualize the different and varied departments into which it is commercially divided, and select that which is best suited to the work he has in hand and estimate its cost.

LINE WORK ON ZINC

Ordinary Open Line Work

Per square inch,	Minimum, 14 square inches,
6d.	7/-

Tint Laying

Per tint or angle of tint

Per square inch,	Minimum, 14 square inches,
2d.	2/4

The measurement for Tint Laying is to be calculated on the tint portion only, with 14 square ins. minimum. If the same tint is laid at more than one angle, each additional angle will be charged as an extra tint. Artist's work, preparing plates for tint laying, will be charged extra, according to time taken.

All Line Work on Copper, double Zinc Rates.

For line work from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 20%, minimum **2/-**.

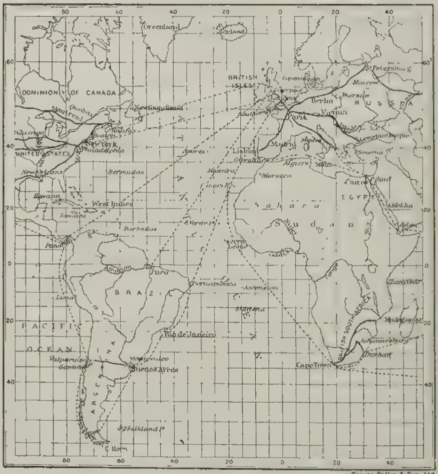
Grouping

When line originals are sent in for uniform reduction, and are of a suitable nature for working together, they will be charged at overall measurement, plus the separating charge of **6**d. per subject.

Please see also allowances on large sizes and incidental charges on page 78.

Fine Maps, fine Script, fine Mechanical Drawings, fine Pen and Ink Work, reproductions of Steel and Copper Engravings.

Fine Line Work



George Philip & Son, Ltd.

Per square inch,	Minimum, 14 square inches,
8d.	9/4

Ordinary Open Line Work

Per square inch, 6d.
Minimum 14 square inches 7/-

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	7	6	**68**	1	14	0
6	0	8	0	**9**	1	14	6
7	0	8	6	**70**	1	15	0
8	0	9	0	**1**	1	15	6
9	0	9	6	**2**	1	16	0
20	0	10	0	**3**	1	16	6
1	0	10	6	**4**	1	17	0
2	0	11	0	**5**	1	17	6
3	0	11	6	**6**	1	18	0
4	0	12	0	**7**	1	18	6
5	0	12	6	**8**	1	19	0
6	0	13	0	**9**	1	19	6
7	0	13	6	**80**	2	0	0
8	0	14	0	**1**	2	0	6
9	0	14	6	**2**	2	1	0
30	0	15	0	**3**	2	1	6
1	0	15	6	**4**	2	2	0
2	0	16	0	**5**	2	2	6
3	0	16	6	**6**	2	3	0
4	0	17	0	**7**	2	3	6
5	0	17	6	**8**	2	4	0
6	0	18	0	**9**	2	4	6
7	0	18	6	**90**	2	5	0
8	0	19	0	**1**	2	5	6
9	0	19	6	**2**	2	6	0
40	1	0	0	**3**	2	6	6
1	1	0	6	**4**	2	7	0
2	1	1	0	**5**	2	7	6
3	1	1	6	**6**	2	8	0
4	1	2	0	**7**	2	8	6
5	1	2	6	**8**	2	9	0
6	1	3	0	**9**	2	9	6
7	1	3	6	**100**	2	10	0
8	1	4	0	**1**	2	10	6
9	1	4	6	**2**	2	11	0
50	1	5	0	**3**	2	11	6
1	1	5	6	**4**	2	12	0
2	1	6	0	**5**	2	12	6
3	1	6	6	**6**	2	13	0
4	1	7	0	**7**	2	13	6
5	1	7	6	**8**	2	14	0
6	1	8	0	**9**	2	14	6
7	1	8	6	**110**	2	15	0
8	1	9	0	**1**	2	15	6
9	1	9	6	**2**	2	16	0
60	1	10	0	**3**	2	16	6
1	1	10	6	**4**	2	17	0
2	1	11	0	**5**	2	17	6
3	1	11	6	**6**	2	18	0
4	1	12	0	**7**	2	18	6
5	1	12	6	**8**	2	19	0
6	1	13	0	**9**	2	19	6
7	1	13	6	**120**	3	0	0

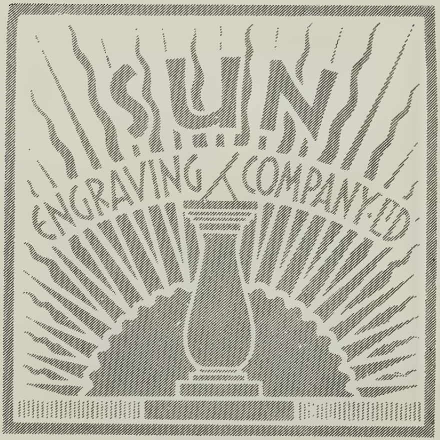
Full Line Work

Per square inch, 8d.
Minimum 14 square inches 9/4

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	10	0	**68**	2	5	4
6	0	10	8	**9**	2	6	0
7	0	11	4	**70**	2	6	8
8	0	12	0	**1**	2	7	4
9	0	12	8	**2**	2	8	0
20	0	13	4	**3**	2	8	8
1	0	14	0	**4**	2	9	4
2	0	14	8	**5**	2	10	0
3	0	15	4	**6**	2	10	8
4	0	16	0	**7**	2	11	4
5	0	16	8	**8**	2	12	0
6	0	17	4	**9**	2	12	8
7	0	18	0	**80**	2	13	4
8	0	18	8	**1**	2	14	0
9	0	19	4	**2**	2	14	8
30	1	0	0	**3**	2	15	4
1	1	0	8	**4**	2	16	0
2	1	1	4	**5**	2	16	8
3	1	2	0	**6**	2	17	4
4	1	2	8	**7**	2	18	0
5	1	3	4	**8**	2	18	8
6	1	4	0	**9**	2	19	4
7	1	4	8	**90**	3	0	0
8	1	5	4	**1**	3	0	8
9	1	6	0	**2**	3	1	4
40	1	6	8	**3**	3	2	0
1	1	7	4	**4**	3	2	8
2	1	8	0	**5**	3	3	4
3	1	8	8	**6**	3	4	0
4	1	9	4	**7**	3	4	8
5	1	10	0	**8**	3	5	4
6	1	10	8	**9**	3	6	0
7	1	11	4	**100**	3	6	8
8	1	12	0	**1**	3	7	4
9	1	12	8	**2**	3	8	0
50	1	13	4	**3**	3	8	8
1	1	14	0	**4**	3	9	4
2	1	14	8	**5**	3	10	0
3	1	15	4	**6**	3	10	8
4	1	16	0	**7**	3	11	4
5	1	16	8	**8**	3	12	0
6	1	17	4	**9**	3	12	8
7	1	18	0	**110**	3	13	4
8	1	18	8	**1**	3	14	0
9	1	19	4	**2**	3	14	8
60	2	0	0	**3**	3	15	4
1	2	0	8	**4**	3	16	0
2	2	1	4	**5**	3	16	8
3	2	2	0	**6**	3	17	4
4	2	2	8	**7**	3	18	0
5	2	3	4	**8**	3	18	8
6	2	4	0	**9**	3	19	4
7	2	4	8	**120**	4	0	0

LINE WORK ON ZINC

Half Line Work (if wholly in Half Line)



Per square inch	Minimum 14 square inches
8d.	9/4

Grouping

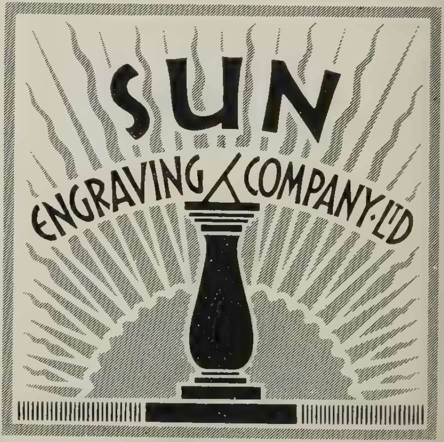
When line originals are sent in for uniform reduction, and are of a suitable nature for working together, they will be charged at overall measurement, plus the separating charge of 6d. per subject.

All Line Work on Copper, double Zinc rates.

For line work from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 20%, minimum 2/-.

Please see also allowances on large sizes and incidental charges on page 78.

If partly in Ordinary Line and partly in Half Line



Per square inch	Minimum 14 square inches
9d.	10/6

Half Line Work

(If wholly in Half Line)

Per square inch 8d.
Minimum 14 square inches **9/4**

Sq. ins.	£ s. d.	Sq. ins.	£ s. d.
15	0 10 0	**68**	2 5 4
6	0 10 8	**9**	2 6 0
7	0 11 4	**70**	2 6 8
8	0 12 0	**1**	2 7 4
9	0 12 8	**2**	2 8 0
20	0 13 4	**3**	2 8 8
1	0 14 0	**4**	2 9 4
2	0 14 8	**5**	2 10 0
3	0 15 4	**6**	2 10 8
4	0 16 0	**7**	2 11 4
5	0 16 8	**8**	2 12 0
6	0 17 4	**9**	2 12 8
7	0 18 0	**80**	2 13 4
8	0 18 8	**1**	2 14 0
9	0 19 4	**2**	2 14 8
30	1 0 0	**3**	2 15 4
1	1 0 8	**4**	2 16 0
2	1 1 4	**5**	2 16 8
3	1 2 0	**6**	2 17 4
4	1 2 8	**7**	2 18 0
5	1 3 4	**8**	2 18 8
6	1 4 0	**9**	2 19 4
7	1 4 8	**90**	3 0 0
8	1 5 4	**1**	3 0 8
9	1 6 0	**2**	3 1 4
40	1 6 8	**3**	2 2 0
1	1 7 4	**4**	3 2 8
2	1 8 0	**5**	3 3 4
3	1 8 8	**6**	3 4 0
4	1 9 4	**7**	3 4 8
5	1 10 0	**8**	3 5 4
6	1 10 8	**9**	3 6 0
7	1 11 4	**100**	3 6 8
8	1 12 0	**1**	3 7 4
9	1 12 8	**2**	3 8 0
50	1 13 4	**3**	3 8 8
1	1 14 0	**4**	3 9 4
2	1 14 8	**5**	3 10 0
3	1 15 4	**6**	3 10 8
4	1 16 0	**7**	3 11 4
5	1 16 8	**8**	3 12 0
6	1 17 4	**9**	3 12 8
7	1 18 0	**110**	3 13 4
8	1 18 8	**1**	3 14 0
9	1 19 4	**2**	3 14 8
60	2 0 0	**3**	3 15 4
1	2 0 8	**4**	3 16 0
2	2 1 4	**5**	3 16 8
3	2 2 0	**6**	3 17 4
4	2 2 8	**7**	3 18 0
5	2 3 4	**8**	3 18 8
6	2 4 0	**9**	3 19 4
7	2 4 8	**120**	4 0 0

If Partly in Ordinary Line and Partly in Half Line

Per square inch 9d.
Minimum 14 square inches **10/6**

Sq. ins.	£ s. d.	Sq. ins.	£ s. d.
15	0 11 3	**68**	2 11 0
6	0 12 0	**9**	2 11 9
7	0 12 9	**70**	2 12 6
8	0 13 6	**1**	2 13 3
9	0 14 3	**2**	2 14 0
20	0 15 0	**3**	2 14 9
1	0 15 9	**4**	2 15 6
2	0 16 6	**5**	2 16 3
3	0 17 3	**6**	2 17 0
4	0 18 0	**7**	2 17 9
5	0 18 9	**8**	2 18 6
6	0 19 6	**9**	2 19 3
7	1 0 3	**80**	3 0 0
8	1 1 0	**1**	3 0 9
9	1 1 9	**2**	3 1 6
30	1 2 6	**3**	3 2 3
1	1 3 3	**4**	3 3 0
2	1 4 0	**5**	3 3 9
3	1 4 9	**6**	3 4 6
4	1 5 6	**7**	3 5 3
5	1 6 3	**8**	3 6 0
6	1 7 0	**9**	3 6 9
7	1 7 9	**90**	3 7 6
8	1 8 6	**1**	3 8 3
9	1 9 3	**2**	3 9 0
40	1 10 0	**3**	3 9 9
1	1 10 9	**4**	3 10 6
2	1 11 6	**5**	3 11 3
3	1 12 3	**6**	3 12 0
4	1 13 0	**7**	3 12 9
5	1 13 9	**8**	3 13 6
6	1 14 6	**9**	3 14 3
7	1 15 3	**100**	3 15 0
8	1 16 0	**1**	3 15 9
9	1 16 9	**2**	3 16 6
50	1 17 6	**3**	3 17 3
1	1 18 3	**4**	3 18 0
2	1 19 0	**5**	3 18 9
3	1 19 9	**6**	3 19 6
4	2 0 6	**7**	4 0 3
5	2 1 3	**8**	4 1 0
6	2 2 0	**9**	4 1 9
7	2 2 9	**110**	4 2 6
8	2 3 6	**1**	4 3 3
9	2 4 3	**2**	4 4 0
60	2 5 0	**3**	4 4 9
1	2 5 9	**4**	4 5 6
2	2 6 6	**5**	4 6 3
3	2 7 3	**6**	4 7 0
4	2 8 0	**7**	4 7 9
5	2 8 9	**8**	4 8 6
6	2 9 6	**9**	4 9 3
7	2 10 3	**120**	4 10 0

COLOUR LINE WORK

Including proofing in colour, without tints, for two colours.

Two-colour Line

Per square inch	Minimum 14 square inches
1/4	18/8

Per Colour after, 8d. per square inch.
Minimum 9/4

Colour separation or artist's work to be charged extra.

If proofs are not required in colour a deduction of 2d. per square inch per colour will be made, but in all cases colour proofs are advisable.

The measurement shall be taken as the size of the largest block, except the colours composed of small isolated pieces of work such as initial letters, ornaments, etc., which do not extend beyond one-quarter of the total area.

Tints extra at schedule rates.

All Line Work on Copper, double Zinc rates.

Please see also allowances on large sizes and incidental charges on page 78.

Two-colour Line

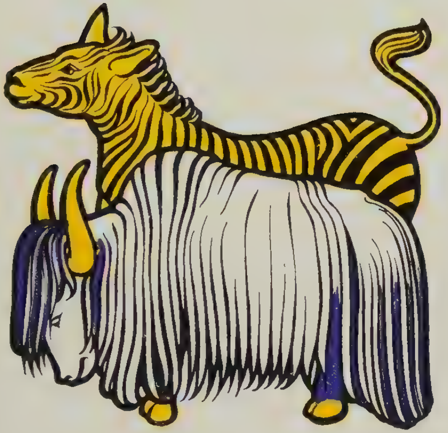
Per square inch **1/4**
Minimum 14 square inches **18/8**

Per Colour after 8d. per square inch.
Minimum **9/4.**

SQ. INS.	£	*s.*	*d.*	SQ. INS.	£	*s.*	*d.*
15	1	0	0	**68**	4	10	8
6	1	1	4	**9**	4	12	0
7	1	2	8	**70**	4	13	4
8	1	4	0	**1**	4	14	8
9	1	5	4	**2**	4	16	0
20	1	6	8	**3**	4	17	4
1	1	8	0	**4**	4	18	8
2	1	9	4	**5**	5	0	0
3	1	10	8	**6**	5	1	4
4	1	12	0	**7**	5	2	8
5	1	13	4	**8**	5	4	0
6	1	14	8	**9**	5	5	4
7	1	16	0	**80**	5	6	8
8	1	15	4	**1**	5	8	0
9	1	18	8	**2**	5	9	4
30	2	0	0	**3**	5	10	8
1	2	1	4	**4**	5	12	0
2	2	2	8	**5**	5	13	4
3	2	4	0	**6**	5	14	8
4	2	5	4	**7**	5	16	0
5	2	6	8	**8**	5	17	4
6	2	8	0	**9**	5	18	8
7	2	9	4	**90**	6	0	0
8	2	10	8	**1**	6	1	4
9	2	12	0	**2**	6	2	8
40	2	13	4	**3**	6	4	0
1	2	14	8	**4**	6	5	4
2	2	16	0	**5**	6	6	8
3	2	17	4	**6**	6	8	0
4	2	18	8	**7**	6	9	4
5	3	0	0	**8**	6	10	8
6	3	1	4	**9**	6	12	0
7	3	2	8	**100**	6	13	4
8	3	4	0	**1**	6	16	8
9	3	5	4	**2**	6	16	0
50	3	6	8	**3**	6	17	4
1	3	8	0	**4**	6	18	8
2	3	9	4	**5**	7	0	0
3	3	10	8	**6**	7	1	4
4	3	12	0	**7**	7	2	8
5	3	13	4	**8**	7	4	0
6	3	14	8	**9**	7	5	4
7	3	16	0	**110**	7	6	8
8	3	17	4	**1**	7	8	0
9	3	18	8	**2**	7	9	4
60	4	0	0	**3**	7	10	8
1	4	1	4	**4**	7	12	0
2	4	2	8	**5**	7	13	4
3	4	4	0	**6**	7	14	8
4	4	5	4	**7**	7	16	0
5	4	6	8	**8**	7	17	4
6	4	8	0	**9**	7	18	8
7	4	9	4	**120**	8	0	0

COLOUR LINE WORK

Including proofing in colour, without tints.



Example of Three-colour Line

Per square inch

2/-

Minimum 14 square inches

£1 8 0

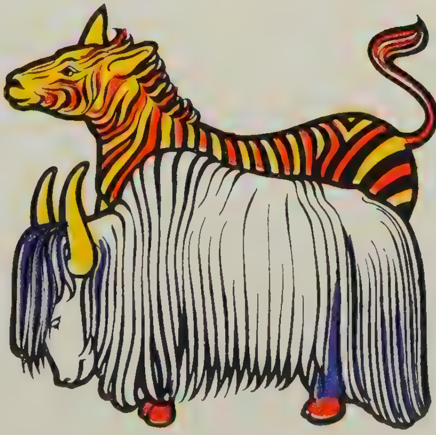
Example of Four-colour Line

Per square inch

2/8

Minimum 14 square inches

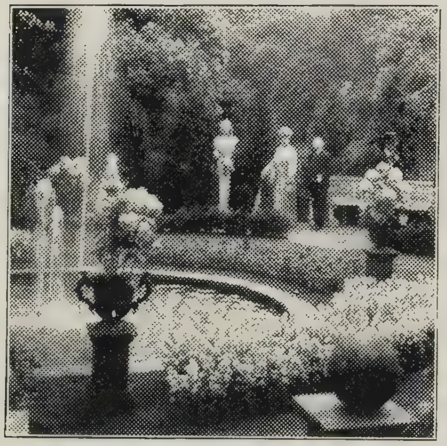
£1 17 4



HALF-TONE ON ZINC

On Zinc finer than 85 Screen, same price as Copper.

Squared up, 65 Screen or Coarser



Per square inch	Minimum, 14 square inches
7d.	8/2

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6d.** per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2/-** per subject if subjects are squared up, **3/-** per subject for circles or ovals, and **4/-** per subject if subjects are vignetted, cut out, deep-etched, or combination work, and **5/-** per subject if duplex.

In any case, the extra **2/-**, **3/-**, **4/-**, or **5/-** only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

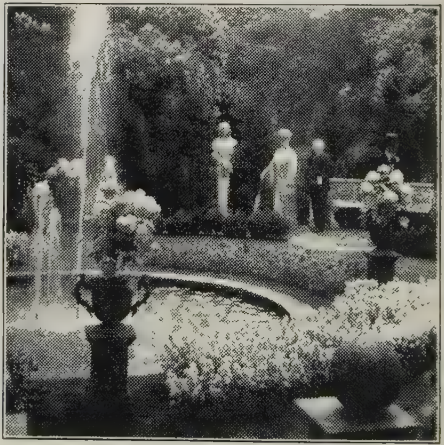
If separated, the extra charge of **6d.** per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum **2/-**.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Squared up, over 65 up to 85 Screen



Per square inch	Minimum 14 square inches
8d.	9/4

Squared up, 65 Screen or Coarser

Per square inch 7d.
Minimum 14 square inches **8/2**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15 -	0	8	9	68 -	1	19	8
6 -	0	9	4	9 -	2	0	3
7 -	0	9	11	70 -	2	0	10
8 -	0	10	6	1 -	2	1	5
9 -	0	11	1	2 -	2	2	0
20 -	0	11	8	3 -	2	2	7
1 -	0	12	3	4 -	2	3	2
2 -	0	12	10	5 -	2	3	9
3 -	0	13	5	6 -	2	4	4
4 -	0	14	0	7 -	2	4	11
5 -	0	14	7	8 -	2	5	6
6 -	0	15	2	9 -	2	6	1
7 -	0	15	9	80 -	2	6	8
8 -	0	16	4	1 -	2	7	3
9 -	0	16	11	2 -	2	7	10
30 -	0	17	6	3 -	2	8	5
1 -	0	18	1	4 -	2	9	0
2 -	0	18	8	5 -	2	9	7
3 -	0	19	3	6 -	2	10	2
4 -	0	19	10	7 -	2	10	9
5 -	1	0	5	8 -	2	11	4
6 -	1	1	0	9 -	2	11	11
7 -	1	1	7	90 -	2	12	6
8 -	1	2	2	1 -	2	13	1
9 -	1	2	9	2 -	2	13	8
40 -	1	3	4	3 -	2	14	3
1 -	1	3	11	4 -	2	14	10
2 -	1	4	6	5 -	2	15	5
3 -	1	5	1	6 -	2	16	0
4 -	1	5	8	7 -	2	16	7
5 -	1	6	3	8 -	2	17	2
6 -	1	6	10	9 -	2	17	9
7 -	1	7	5	100 -	2	18	4
8 -	1	8	0	1 -	2	18	11
9 -	1	8	7	2 -	2	19	6
50 -	1	9	2	3 -	3	0	1
1 -	1	9	9	4 -	3	0	8
2 -	1	10	4	5 -	3	1	3
3 -	1	10	11	6 -	3	1	10
4 -	1	11	6	7 -	3	2	5
5 -	1	12	1	8 -	3	3	0
6 -	1	12	8	9 -	3	3	7
7 -	1	13	3	110 -	3	4	2
8 -	1	13	10	1 -	3	4	9
9 -	1	14	5	2 -	3	5	4
60 -	1	15	0	3 -	3	5	11
1 -	1	15	7	4 -	3	6	6
2 -	1	16	2	5 -	3	7	1
3 -	1	16	9	6 -	3	7	8
4 -	1	17	4	7 -	3	8	3
5 -	1	17	11	8 -	3	8	10
6 -	1	18	6	9 -	3	9	5
7 -	1	19	1	120 -	3	10	0

Squared up, over 65 up to 85 Screen

Per square inch 8d.
Minimum 14 square inches **9/4**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15 -	0	10	0	68 -	2	5	4
6 -	0	10	8	9 -	2	6	0
7 -	0	11	4	70 -	2	6	8
8 -	0	12	0	1 -	2	7	4
9 -	0	12	8	2 -	2	8	0
20 -	0	13	4	3 -	2	8	8
1 -	0	14	0	4 -	2	9	4
2 -	0	14	8	5 -	2	10	0
3 -	0	15	4	6 -	2	10	8
4 -	0	16	0	7 -	2	11	4
5 -	0	16	8	8 -	2	12	0
6 -	0	17	4	9 -	2	12	8
7 -	0	18	0	80 -	2	13	4
8 -	0	18	8	1 -	2	14	0
9 -	0	19	4	2 -	2	14	8
30 -	1	0	0	3 -	2	15	4
1 -	1	0	8	4 -	2	16	0
2 -	1	1	4	5 -	2	16	8
3 -	1	2	0	6 -	2	17	4
4 -	1	2	8	7 -	2	18	0
5 -	1	3	4	8 -	2	18	8
6 -	1	4	0	9 -	2	19	4
7 -	1	4	8	90 -	3	0	0
8 -	1	5	4	1 -	3	0	8
9 -	1	6	0	2 -	3	1	4
40 -	1	6	8	3 -	3	2	0
1 -	1	7	4	4 -	3	2	8
2 -	1	8	0	5 -	3	3	4
3 -	1	8	8	6 -	3	4	0
4 -	1	9	4	7 -	3	4	8
5 -	1	10	0	8 -	3	5	4
6 -	1	10	8	9 -	3	6	0
7 -	1	11	4	100 -	3	6	8
8 -	1	12	0	1 -	3	7	4
9 -	1	12	8	2 -	3	8	0
50 -	1	13	4	3 -	3	8	8
1 -	1	14	0	4 -	3	9	4
2 -	1	14	8	5 -	3	10	0
3 -	1	15	4	6 -	3	10	8
4 -	1	16	0	7 -	2	11	4
5 -	1	16	8	8 -	3	12	0
6 -	1	17	4	9 -	3	12	8
7 -	1	18	0	110 -	3	13	4
8 -	1	18	8	1 -	3	14	0
9 -	1	19	4	2 -	3	14	8
60 -	2	0	0	3 -	3	15	4
1 -	2	0	8	4 -	3	16	0
2 -	2	1	4	5 -	3	16	8
3 -	2	2	0	6 -	3	17	4
4 -	2	2	8	7 -	3	18	0
5 -	2	3	4	8 -	3	18	8
6 -	2	4	0	9 -	3	19	4
7 -	2	4	8	120 -	4	0	0

HALF-TONE ON ZINC

On Zinc finer than 85 Screen, same price as Copper.

Circles or Ovals, 65 Screen or Coarser

Per square inch	Minimum 14 square inches
8d.	**9/4**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject if subjects are squared up, **3**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

If separated, the extra charge of **6**d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Circles or Ovals, over 65 up to 85 Screen

Per square inch	Minimum 14 square inches
9d.	**10/6**

Circles or Ovals, 65 Screen or Coarser

Per square inch 8d.
Minimum 14 square inches **9/4**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	10	0	**68**	2	5	4
6	0	10	8	**9**	2	6	0
7	0	11	4	**70**	2	6	8
8	0	12	0	**1**	2	7	4
9	0	12	8	**2**	2	8	0
20	0	13	4	**3**	2	8	8
1	0	14	0	**4**	2	9	4
2	0	14	8	**5**	2	10	0
3	0	15	4	**6**	2	10	8
4	0	16	0	**7**	2	11	4
5	0	16	8	**8**	2	12	0
6	0	17	4	**9**	2	12	8
7	0	18	0	**80**	2	13	4
8	0	18	8	**1**	2	14	0
9	0	19	4	**2**	2	14	8
30	1	0	0	**3**	2	15	4
1	1	0	8	**4**	2	16	0
2	1	1	4	**5**	2	16	8
3	1	2	0	**6**	2	17	4
4	1	2	8	**7**	2	18	0
5	1	3	4	**8**	2	18	8
6	1	4	0	**9**	2	19	4
7	1	4	8	**90**	3	0	0
8	1	5	4	**1**	3	0	8
9	1	6	0	**2**	3	1	4
40	1	6	8	**3**	3	2	0
1	1	7	4	**4**	3	2	8
2	1	8	0	**5**	3	3	4
3	1	8	8	**6**	3	4	0
4	1	9	4	**7**	3	4	8
5	1	10	0	**8**	3	5	4
6	1	10	8	**9**	3	6	0
7	1	11	4	**100**	3	6	8
8	1	12	0	**1**	3	7	4
9	1	12	8	**2**	3	8	0
50	1	13	4	**3**	3	8	8
1	1	14	0	**4**	3	9	4
2	1	14	8	**5**	3	10	0
3	1	15	4	**6**	3	10	8
4	1	16	0	**7**	3	11	4
5	1	16	8	**8**	3	12	0
6	1	17	4	**9**	3	12	8
7	1	18	0	**110**	3	13	4
8	1	18	8	**1**	3	14	0
9	1	19	4	**2**	3	14	8
60	2	0	0	**3**	3	15	4
1	2	0	8	**4**	3	16	0
2	2	1	4	**5**	3	16	8
3	2	2	0	**6**	3	17	4
4	2	2	8	**7**	3	18	0
5	2	3	4	**8**	3	18	8
6	2	4	0	**9**	3	19	4
7	2	4	8	**120**	4	0	0

Circles or Ovals, over 65 up to 85 Screen

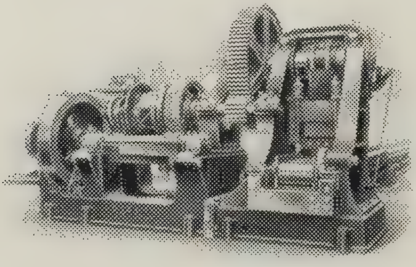
Per square inch 9d.
Minimum 14 square inches **10/6**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	11	3	**68**	2	11	0
6	0	12	0	**9**	2	11	9
7	0	12	9	**70**	2	12	6
8	0	13	6	**1**	2	13	3
9	0	14	3	**2**	2	14	0
20	0	15	0	**3**	2	14	9
1	0	15	9	**4**	2	15	6
2	0	16	0	**5**	2	16	3
3	0	17	3	**6**	2	17	0
4	0	18	0	**7**	2	17	9
5	0	18	9	**8**	2	18	6
6	0	19	6	**9**	2	19	3
7	1	0	3	**80**	3	0	0
8	1	1	0	**1**	3	0	9
9	1	1	9	**2**	3	1	6
30	1	2	6	**3**	3	2	3
1	1	3	3	**4**	3	3	0
2	1	4	0	**5**	3	3	9
3	1	4	9	**6**	3	4	6
4	1	5	6	**7**	3	5	3
5	1	6	3	**8**	3	6	0
6	1	7	0	**9**	3	6	9
7	1	7	9	**90**	3	7	6
8	1	8	6	**1**	3	8	3
9	1	9	3	**2**	3	9	0
40	1	10	0	**3**	3	9	9
1	1	10	9	**4**	3	10	6
2	1	11	6	**5**	3	11	3
3	1	12	3	**6**	3	12	0
4	1	13	0	**7**	3	12	9
5	1	13	9	**8**	3	13	6
6	1	14	6	**9**	3	14	3
7	1	15	3	**100**	3	15	0
8	1	16	0	**1**	3	15	9
9	1	16	9	**2**	3	16	6
50	1	17	6	**3**	3	17	3
1	1	18	3	**4**	3	18	0
2	1	19	0	**5**	3	18	9
3	1	19	9	**6**	3	19	6
4	2	0	6	**7**	4	0	3
5	2	1	3	**8**	4	1	0
6	2	2	0	**9**	4	1	9
7	2	2	9	**110**	4	2	6
8	2	3	6	**1**	4	3	3
9	2	4	3	**2**	4	4	0
60	2	5	0	**3**	4	4	9
1	2	5	9	**4**	4	5	6
2	2	6	6	**5**	4	6	3
3	2	7	3	**6**	4	7	0
4	2	8	0	**7**	4	7	9
5	2	8	9	**8**	4	8	6
6	2	9	6	**9**	4	9	3
7	2	10	3	**120**	4	10	0

HALF-TONE ON ZINC

On Zinc finer than 85 Screen, same price as Copper.

Vignettes or Cut-outs, 65 Screen or Coarser



Per square inch	Minimum 14 square inches
10d.	**11/8**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject, if subjects are squared up, **2**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

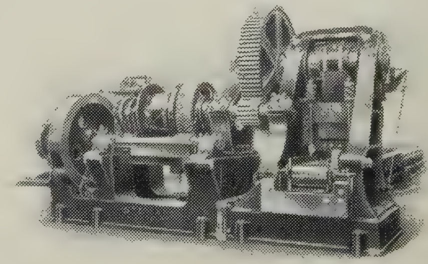
If separated, the extra charge of **6**d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment produced direct, an extra charge will be made of 10%, minimum **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Vignettes or Cut-outs, over 65 up to 85 Screen



Per square inch	Minimum 14 square inches
11d.	**12/10**

Vignettes or Cut-outs, 65 Screen or Coarser

Per square inch **10d.**
Minimum 14 square inches **11/8**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	12	6	**68**	2	16	8
6	0	13	4	**9**	2	17	6
7	0	14	2	**70**	2	18	4
8	0	15	0	**1**	2	19	2
9	0	15	10	**2**	3	0	0
20	0	16	8	**3**	3	0	10
1	0	17	6	**4**	3	1	8
2	0	18	4	**5**	3	2	6
3	0	19	2	**6**	3	3	4
4	1	0	0	**7**	3	4	2
5	1	0	10	**8**	3	5	0
6	1	1	8	**9**	3	5	10
7	1	2	6	**80**	3	6	8
8	1	3	4	**1**	3	7	6
9	1	4	2	**2**	3	8	4
30	1	5	0	**3**	3	9	2
1	1	5	10	**4**	3	10	0
2	1	6	8	**5**	3	10	10
3	1	7	6	**6**	3	11	8
4	1	8	4	**7**	3	12	6
5	1	9	2	**8**	3	13	4
6	1	10	0	**9**	3	14	2
7	1	10	10	**90**	3	15	0
8	1	11	8	**1**	3	15	10
9	1	12	6	**2**	3	16	8
40	1	13	4	**3**	3	17	6
1	1	14	2	**4**	3	18	4
2	1	15	0	**5**	3	19	2
3	1	15	10	**6**	4	0	0
4	1	16	8	**7**	4	0	10
5	1	17	6	**8**	4	1	8
6	1	18	4	**9**	4	2	6
7	1	19	2	**100**	4	3	4
8	2	0	0	**1**	4	4	2
9	2	0	10	**2**	4	5	0
50	2	1	8	**3**	4	5	10
1	2	2	6	**4**	4	6	8
2	2	3	4	**5**	4	7	6
3	2	4	2	**6**	4	8	4
4	2	5	0	**7**	4	9	2
5	2	5	10	**8**	4	10	0
6	2	6	8	**9**	4	10	10
7	2	7	6	**110**	4	11	8
8	2	8	4	**1**	4	12	6
9	2	9	2	**2**	4	13	4
60	2	10	0	**3**	4	14	2
1	2	10	10	**4**	4	15	0
2	2	11	8	**5**	4	15	10
3	2	12	6	**6**	4	16	8
4	2	13	4	**7**	4	17	6
5	2	14	2	**8**	4	18	4
6	2	15	0	**9**	4	19	2
7	2	15	10	**120**	5	0	0

Vignettes or Cut-outs, over 65 up to 85 Screen

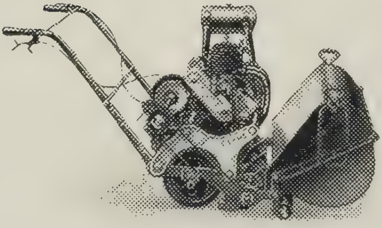
Per square inch **11d.**
Minimum 14 square inches **12/10**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	13	9	**68**	3	2	4
6	0	14	8	**9**	3	3	3
7	0	15	7	**70**	3	4	2
8	0	16	6	**1**	3	5	1
9	0	17	5	**2**	3	6	0
20	0	18	4	**3**	3	6	11
1	0	19	3	**4**	3	7	10
2	1	0	2	**5**	3	8	9
3	1	1	1	**6**	3	9	8
4	1	2	0	**7**	3	10	7
5	1	2	11	**8**	3	11	6
6	1	3	10	**9**	3	12	5
7	1	4	9	**80**	3	13	4
8	1	5	8	**1**	3	14	3
9	1	6	7	**2**	3	15	2
30	1	7	6	**3**	3	16	1
1	1	8	5	**4**	3	17	0
2	1	9	4	**5**	3	17	11
3	1	10	3	**6**	3	18	10
4	1	11	2	**7**	3	19	9
5	1	12	1	**8**	4	0	8
6	1	13	0	**9**	4	1	7
7	1	13	11	**90**	4	2	6
8	1	14	10	**1**	4	3	5
9	1	15	9	**2**	4	4	4
40	1	16	8	**3**	4	5	3
1	1	17	7	**4**	4	6	2
2	1	18	6	**5**	4	7	1
3	1	19	5	**6**	4	8	0
4	2	0	4	**7**	4	8	11
5	2	1	3	**8**	4	9	10
6	2	2	2	**9**	4	10	9
7	2	3	1	**100**	4	11	8
8	2	4	0	**1**	4	12	7
9	2	4	11	**2**	4	13	6
50	2	5	10	**3**	4	14	5
1	2	6	9	**4**	4	15	4
2	2	7	8	**5**	4	16	3
3	2	8	7	**6**	4	17	2
4	2	9	6	**7**	4	18	1
5	2	10	5	**8**	4	19	0
6	2	11	4	**9**	4	19	11
7	2	12	3	**110**	5	0	10
8	2	13	2	**1**	5	1	9
9	2	14	1	**2**	5	2	8
60	2	15	0	**3**	5	3	7
1	2	15	11	**4**	5	4	6
2	2	16	10	**5**	5	5	5
3	2	17	9	**6**	5	6	4
4	2	18	8	**7**	5	7	3
5	2	19	7	**8**	5	8	2
6	3	0	6	**9**	5	9	1
7	3	1	5	**120**	5	10	0

HALF-TONE ON ZINC

On Zinc finer than 85 screen same price as copper.

Intricate Cut-outs, 65 Screen or Coarser



Per square inch	Minimum 14 square inches
1/2	**16/4**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject if subjects are squared up, **3**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

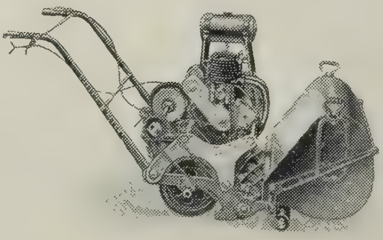
If separated, the extra charge of **6**d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Intricate Cut-outs 65 up to 85 screen



Per square inch	Minimum 14 square inches
1/3	**17/6**

Intricate Cut-out Half-tone, 65 screen or coarser

Per square inch **1/2**
Minimum 14 square inches **16/4**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	17	6	**68**	3	19	4
6	0	18	8	**9**	4	0	6
7	0	19	10	**70**	4	1	8
8	1	1	0	**1**	4	2	10
9	1	2	2	**2**	4	4	0
20	1	3	4	**3**	4	5	2
1	1	4	6	**4**	4	6	4
2	1	5	8	**5**	4	7	6
3	1	6	10	**6**	4	8	8
4	1	8	0	**7**	4	9	10
5	1	9	2	**8**	4	11	0
6	1	10	4	**9**	4	12	2
7	1	11	6	**80**	4	13	4
8	1	12	8	**1**	4	14	6
9	1	13	10	**2**	4	15	8
30	1	15	0	**3**	4	16	10
1	1	16	2	**4**	4	18	0
2	1	17	4	**5**	4	19	2
3	1	18	6	**6**	5	0	4
4	1	19	8	**7**	5	1	6
5	2	0	10	**8**	5	2	8
6	2	2	0	**9**	5	3	10
7	2	3	2	**90**	5	5	0
8	2	4	4	**1**	5	6	2
9	2	5	6	**2**	5	7	4
40	2	6	8	**3**	5	8	6
1	2	7	10	**4**	5	9	8
2	2	9	0	**5**	5	10	10
3	2	10	2	**6**	5	12	0
4	2	11	4	**7**	5	13	2
5	2	12	6	**8**	5	14	4
6	2	13	8	**9**	5	15	6
7	2	14	10	**100**	5	16	8
8	2	16	0	**1**	5	17	10
9	2	17	2	**2**	5	19	0
50	2	18	4	**3**	6	0	2
1	2	19	6	**4**	6	1	4
2	3	0	8	**5**	6	2	6
3	3	1	10	**6**	6	3	8
4	3	3	0	**7**	6	4	10
5	3	4	2	**8**	6	6	0
6	3	5	4	**9**	6	7	2
7	3	6	6	**110**	6	8	4
8	3	7	8	**1**	6	9	6
9	3	8	10	**2**	6	10	8
60	3	10	0	**3**	6	11	10
1	3	11	2	**4**	6	13	0
2	3	12	4	**5**	6	14	2
3	3	13	6	**6**	6	15	4
4	3	14	8	**7**	6	16	6
5	3	15	10	**8**	6	17	8
6	3	17	0	**9**	6	18	10
7	3	18	2	**120**	7	0	0

Intricate Cut-out Half-tone, 65 up to 85 screen

Per square inch **1/3**
Minimum 14 square inches **17/6**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	18	9	**68**	4	5	0
6	1	0	0	**9**	4	6	3
7	1	1	3	**70**	4	7	6
8	1	2	6	**1**	4	8	9
9	1	3	9	**2**	4	10	0
20	1	5	0	**3**	4	11	3
1	1	6	3	**4**	4	12	6
2	1	7	6	**5**	4	13	9
3	1	8	9	**6**	4	15	0
4	1	10	0	**7**	4	16	3
5	1	11	3	**8**	4	17	6
6	1	12	6	**9**	4	18	9
7	1	13	9	**80**	5	0	0
8	1	15	0	**1**	5	1	3
9	1	16	3	**2**	5	2	6
30	1	17	6	**3**	5	3	9
1	1	18	9	**4**	5	5	0
2	2	0	0	**5**	5	6	3
3	2	1	3	**6**	5	7	6
4	2	2	6	**7**	5	8	9
5	2	3	9	**8**	5	10	0
6	2	5	0	**9**	5	11	3
7	2	6	3	**90**	5	12	6
8	2	7	6	**1**	5	13	9
9	2	8	9	**2**	5	15	0
40	2	10	0	**3**	5	16	3
1	2	11	3	**4**	5	17	6
2	2	12	6	**5**	5	18	9
3	2	13	9	**6**	6	0	0
4	2	15	0	**7**	6	1	3
5	2	16	3	**8**	6	2	6
6	2	17	6	**9**	6	3	9
7	2	18	9	**100**	6	5	0
8	3	0	0	**1**	6	6	3
9	3	1	3	**2**	6	7	6
50	3	2	6	**3**	6	8	9
1	3	3	9	**4**	6	10	0
2	3	5	0	**5**	6	11	3
3	3	6	3	**6**	6	12	6
4	3	7	6	**7**	6	13	9
5	3	8	9	**8**	6	15	0
6	3	10	0	**9**	6	16	3
7	3	11	3	**110**	6	17	6
8	3	12	6	**1**	6	18	9
9	3	13	9	**2**	7	0	0
60	3	15	0	**3**	7	1	3
1	3	16	3	**4**	7	2	6
2	3	17	6	**5**	7	3	9
3	3	18	9	**6**	7	5	0
4	4	0	0	**7**	7	6	3
5	4	1	3	**8**	7	7	6
6	4	2	6	**9**	7	8	9
7	4	3	9	**120**	7	10	0

HALF-TONE ON COPPER

Any screen up to 150, work in finer screens than 150, 1½d. per square inch extra.

Squared Up

Per square inch	Minimum 14 square inches
11d.	**12/10**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject if subjects are squared up, **3**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

If separated, the extra charge of **6**d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Circles or Ovals

Per square inch.	Minimum 14 square inches
1/1	**15/2**

Squared Up

Per square inch **11d.**
Minimum 14 square inches **12/10**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	13	9	**68**	3	2	4
6	0	14	8	**9**	3	3	3
7	0	15	7	**70**	3	4	2
8	0	16	6	**1**	3	5	1
9	0	17	5	**2**	3	6	0
20	0	18	4	**3**	3	6	11
1	0	19	3	**4**	3	7	10
2	1	0	2	**5**	3	8	9
3	1	1	1	**6**	3	9	8
4	1	2	0	**7**	3	10	7
5	1	2	11	**8**	3	11	6
6	1	3	10	**9**	3	12	5
7	1	4	9	**80**	3	13	4
8	1	5	8	**1**	3	14	3
9	1	6	7	**2**	3	15	2
30	1	7	6	**3**	3	16	1
1	1	8	5	**4**	3	17	0
2	1	9	4	**5**	3	17	11
3	1	10	3	**6**	3	18	10
4	1	11	2	**7**	3	19	9
5	1	12	1	**8**	4	0	8
6	1	13	0	**9**	4	1	7
7	1	13	11	**90**	4	2	6
8	1	14	10	**1**	4	3	5
9	1	15	9	**2**	4	4	4
40	1	16	8	**3**	4	5	3
1	1	17	7	**4**	4	6	2
2	1	18	6	**5**	4	7	1
3	1	19	5	**6**	4	8	0
4	2	0	4	**7**	4	8	11
5	2	1	3	**8**	4	9	10
6	2	2	2	**9**	4	10	9
7	2	3	1	**100**	4	11	8
8	2	4	0	**1**	4	12	7
9	2	4	11	**2**	4	13	6
50	2	5	10	**3**	4	14	5
1	2	6	9	**4**	4	15	4
2	2	7	8	**5**	4	16	3
3	2	8	7	**6**	4	17	2
4	2	9	6	**7**	4	18	1
5	2	10	5	**8**	4	19	0
6	2	11	4	**9**	4	19	11
7	2	12	3	**110**	5	0	10
8	2	13	2	**1**	5	1	9
9	2	14	1	**2**	5	2	8
60	2	15	0	**3**	5	3	7
1	2	15	11	**4**	5	4	6
2	2	16	10	**5**	5	5	5
3	2	17	9	**6**	5	6	4
4	2	18	8	**7**	5	7	3
5	2	19	7	**8**	5	8	2
6	3	0	6	**9**	5	9	1
7	3	1	5	**120**	5	10	0

Circles or Ovals

Per square inch **1/1**
Minimum 14 square inches **15/2**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	0	16	3	**68**	3	13	8
6	0	17	4	**9**	3	14	9
7	0	18	5	**70**	3	15	10
8	0	19	6	**1**	3	16	11
9	1	0	7	**2**	3	18	0
20	1	1	8	**3**	3	19	1
1	1	2	9	**4**	4	0	2
2	1	3	10	**5**	4	1	3
3	1	4	11	**6**	4	2	4
4	1	6	0	**7**	4	3	5
5	1	7	1	**8**	4	4	6
6	1	8	2	**9**	4	5	7
7	1	9	3	**80**	4	6	8
8	1	10	4	**1**	4	7	9
9	1	11	5	**2**	4	8	10
30	1	12	6	**3**	4	9	11
1	1	13	7	**4**	4	11	0
2	1	14	8	**5**	4	12	1
3	1	15	9	**6**	4	13	2
4	1	16	10	**7**	4	14	3
5	1	17	11	**8**	4	15	4
6	1	19	0	**9**	4	16	5
7	2	0	1	**90**	4	17	6
8	2	1	2	**1**	4	18	7
9	2	2	3	**2**	4	19	8
40	2	3	4	**3**	5	0	9
1	2	4	5	**4**	5	1	10
2	2	5	6	**5**	5	2	11
3	2	6	7	**6**	5	4	0
4	2	7	8	**7**	5	5	1
5	2	8	9	**8**	5	6	2
6	2	9	10	**9**	5	7	3
7	2	10	11	**100**	5	8	4
8	2	12	0	**1**	5	9	5
9	2	13	1	**2**	5	10	6
50	2	14	2	**3**	5	11	7
1	2	15	3	**4**	5	12	8
2	2	16	4	**5**	5	13	9
3	2	17	5	**6**	5	14	10
4	2	18	6	**7**	5	15	11
5	2	19	7	**8**	5	17	0
6	3	0	8	**9**	5	18	1
7	3	1	9	**110**	5	19	2
8	3	2	10	**1**	6	0	3
9	3	3	11	**2**	6	1	4
60	3	5	0	**3**	6	2	5
1	3	6	1	**4**	6	3	6
2	3	7	2	**5**	6	4	7
3	3	8	3	**6**	6	5	8
4	3	9	4	**7**	6	6	9
5	3	10	5	**8**	6	7	10
6	3	11	6	**9**	6	8	11
7	3	12	7	**120**	6	10	0

HALF-TONE ON COPPER

Any screen up to 150.

Work in finer screens than 150, 1½d. per square inch extra.

Vignettes and/or Cut-outs (Simple)

Per square inch	Minimum 14 square inches
1/4	**18/8**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject if subjects are squared up, **3**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

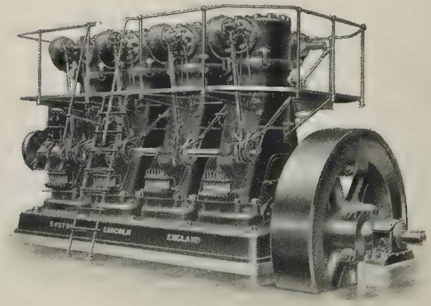
If separated, the extra charge of **6**d per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Vignettes and/or Cut-outs (Intricate)



Per square inch	Minimum 14 square inches
1/8	**£1 3 4**

Vignettes and/or Cut-outs (Simple)

Per square inch **1/4**
Minimum 14 square inches **18/8**

SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.
15	1	0	0	**68**	4	10	8
6	1	1	4	**9**	4	12	0
7	1	2	8	**70**	4	13	4
8	1	4	0	**1**	4	14	8
9	1	5	4	**2**	4	16	0
20	1	6	8	**3**	4	17	4
1	1	8	0	**4**	4	18	8
2	1	9	4	**5**	5	0	0
3	1	10	8	**6**	5	1	4
4	1	12	0	**7**	5	2	8
5	1	13	4	**8**	5	4	0
6	1	14	8	**9**	5	5	4
7	1	16	0	**80**	5	6	8
8	1	17	4	**1**	5	8	0
9	1	18	8	**2**	5	9	4
30	2	0	0	**3**	5	10	8
1	2	1	4	**4**	5	12	0
2	2	2	8	**5**	5	13	4
3	2	4	0	**6**	5	14	8
4	2	5	4	**7**	5	16	0
5	2	6	8	**8**	5	17	4
6	2	8	0	**9**	5	18	8
7	2	9	4	**90**	6	0	0
8	2	10	8	**1**	6	1	4
9	2	12	0	**2**	6	2	8
40	2	13	4	**3**	6	4	0
1	2	14	8	**4**	6	5	4
2	2	16	0	**5**	6	6	8
3	2	17	4	**6**	6	8	0
4	2	18	8	**7**	6	9	4
5	3	0	0	**8**	6	10	8
6	3	1	4	**9**	6	12	0
7	3	2	8	**100**	6	13	4
8	3	4	0	**1**	6	14	8
9	3	5	4	**2**	6	16	0
50	3	6	8	**3**	6	17	4
1	3	8	0	**4**	6	18	8
2	3	9	4	**5**	7	0	0
3	3	10	8	**6**	7	1	4
4	3	12	0	**7**	7	2	8
5	3	13	4	**8**	7	4	0
6	3	14	8	**9**	7	5	4
7	3	16	0	**110**	7	6	8
8	3	17	4	**1**	7	8	0
9	3	18	8	**2**	7	9	4
60	4	0	0	**3**	7	10	8
1	4	1	4	**4**	7	12	0
2	4	2	8	**5**	7	13	4
3	4	4	0	**6**	7	14	8
4	4	5	4	**7**	7	16	0
5	4	6	8	**8**	7	17	4
6	4	8	0	**9**	7	18	8
7	4	9	4	**120**	8	0	0

Vignettes and/or Cut-outs (Intricate)

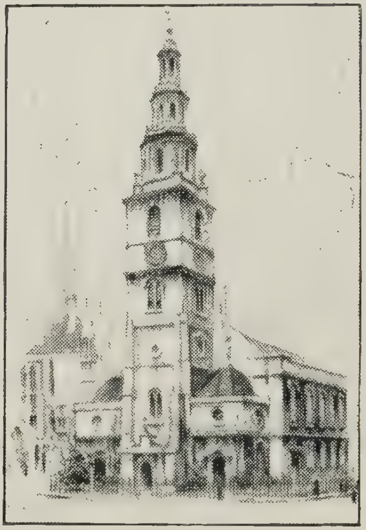
Per square inch **1/8**
Minimum 14 sq. ins. **£1.3.4**

SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.
15	1	5	0	**68**	5	13	4
6	1	6	8	**9**	5	15	0
7	1	8	4	**70**	5	16	8
8	1	10	0	**1**	5	18	4
9	1	11	8	**2**	6	0	0
20	1	13	4	**3**	6	1	8
1	1	15	0	**4**	6	3	4
2	1	16	8	**5**	6	5	0
3	1	18	4	**6**	6	6	8
4	2	0	0	**7**	6	8	4
5	2	1	8	**8**	6	10	0
6	2	3	4	**9**	6	11	8
7	2	5	0	**80**	6	13	4
8	2	6	8	**1**	6	15	0
9	2	8	4	**2**	6	16	8
30	2	10	0	**3**	6	18	4
1	2	11	8	**4**	7	0	0
2	2	13	4	**5**	7	1	8
3	2	15	0	**6**	7	3	4
4	2	16	8	**7**	7	5	0
5	2	18	4	**8**	7	6	8
6	3	0	0	**9**	7	8	4
7	3	1	8	**90**	7	10	0
8	3	3	4	**1**	7	11	8
9	3	5	0	**2**	7	13	4
40	3	6	8	**3**	7	15	0
1	3	8	4	**4**	7	16	8
2	3	10	0	**5**	7	18	4
3	3	11	8	**6**	8	0	0
4	3	13	4	**7**	8	1	8
5	3	15	0	**8**	8	3	4
6	3	16	8	**9**	8	5	0
7	3	18	4	**100**	8	6	8
8	4	0	0	**1**	8	8	4
9	4	1	8	**2**	8	10	0
50	4	3	4	**3**	8	11	8
1	4	5	0	**4**	8	13	4
2	4	6	8	**5**	8	15	0
3	4	8	4	**6**	8	16	8
4	4	10	0	**7**	8	18	4
5	4	11	8	**8**	9	0	0
6	4	13	4	**9**	9	1	8
7	4	15	0	**110**	9	3	4
8	4	16	8	**1**	9	5	0
9	4	18	4	**2**	9	6	8
60	5	0	0	**3**	9	8	4
1	5	1	8	**4**	9	10	0
2	5	3	4	**5**	9	11	8
3	5	5	0	**6**	9	13	4
4	5	6	8	**7**	9	15	0
5	5	8	4	**8**	9	16	8
6	5	10	0	**9**	9	18	4
7	5	11	8	**120**	10	0	0

DEEP ETCHED HALF-TONE

ON ZINC AND COPPER

Deep Etched (Pencil Work, etc.) on Zinc, any Screen up to 85



Per square inch	Minimum 14 square inches
1/4	**18/8**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject if subjects are squared up, **3**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

If separated, the extra charge of **6**d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum, **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Deep Etched (Pencil Work, etc.) on Copper, any Screen up to 150

Per square inch	Minimum 14 square inches
1/10	**£1 5 8**

On Zinc,

Any Screen up to 85

Per square inch **1/4**
Minimum 14 sq. ins. 18/8

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	1	0	0	**68**	4	10	8
6	1	1	4	**9**	4	12	0
7	1	2	8	**70**	4	13	4
8	1	4	0	**1**	4	14	8
9	1	5	4	**2**	4	16	0
20	1	6	8	**3**	4	17	4
1	1	8	0	**4**	4	18	8
2	1	9	4	**5**	5	0	0
3	1	10	8	**6**	5	1	4
4	1	12	0	**7**	5	2	8
5	1	13	4	**8**	5	4	0
6	1	14	8	**9**	5	5	4
7	1	16	0	**80**	5	6	8
8	1	17	4	**1**	5	8	0
9	1	18	8	**2**	5	9	4
30	2	0	0	**3**	5	10	8
1	2	1	4	**4**	5	12	0
2	2	2	8	**5**	5	13	4
3	2	4	0	**6**	5	14	8
4	2	5	4	**7**	5	16	0
5	2	6	8	**8**	5	17	4
6	2	8	0	**9**	5	18	8
7	2	9	4	**90**	6	0	0
8	2	10	8	**1**	6	1	4
9	2	12	0	**2**	6	2	8
40	2	13	4	**3**	6	4	0
1	2	14	8	**4**	6	5	4
2	2	16	0	**5**	6	6	8
3	2	17	4	**6**	6	8	0
4	2	18	8	**7**	6	9	4
5	3	0	0	**8**	6	10	8
6	3	1	4	**9**	6	12	0
7	3	2	8	**100**	6	13	4
8	3	4	0	**1**	6	14	8
9	3	5	4	**2**	6	16	0
50	3	6	8	**3**	6	17	4
1	3	8	0	**4**	6	18	8
2	3	9	4	**5**	7	0	0
3	3	10	8	**6**	7	1	4
4	3	12	0	**7**	7	2	8
5	3	13	4	**8**	7	4	0
6	3	14	8	**9**	7	5	4
7	3	16	0	**110**	7	6	8
8	3	17	4	**1**	7	8	0
9	3	18	8	**2**	7	9	4
60	4	0	0	**3**	7	10	8
1	4	1	4	**4**	7	12	0
2	4	2	8	**5**	7	13	4
3	4	4	0	**6**	7	14	8
4	4	5	4	**7**	7	16	0
5	4	6	8	**8**	7	17	4
6	4	8	0	**9**	7	18	8
7	4	9	4	**120**	8	0	0

On Copper,

Any Screen up to 150

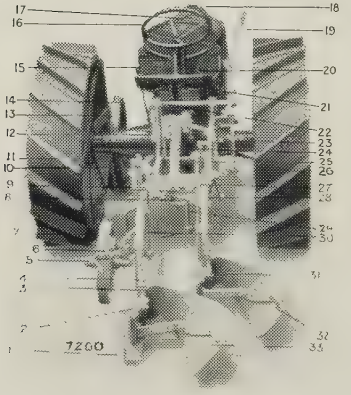
Per square inch **1/10**
Minimum 14 sq. ins. £1.5.8

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	1	7	6	**68**	6	4	8
6	1	9	4	**9**	6	6	6
7	1	11	2	**70**	6	8	4
8	1	13	0	**1**	6	10	2
9	1	14	10	**2**	6	12	0
20	1	16	8	**3**	6	13	10
1	1	18	6	**4**	6	15	8
2	2	0	4	**5**	6	17	6
3	2	2	2	**6**	6	19	4
4	2	4	0	**7**	7	1	2
5	2	5	10	**8**	7	3	0
6	2	7	8	**9**	7	4	10
7	2	9	6	**80**	7	6	8
8	2	11	4	**1**	7	8	6
9	2	13	2	**2**	7	10	4
30	2	15	0	**3**	7	12	2
1	2	16	10	**4**	7	14	0
2	2	18	8	**5**	7	15	10
3	3	0	6	**6**	7	17	8
4	3	2	4	**7**	7	19	6
5	3	4	2	**8**	8	1	4
6	3	6	0	**9**	8	3	2
7	3	7	10	**90**	8	5	0
8	3	9	8	**1**	8	6	10
9	3	11	6	**2**	8	8	8
40	3	13	4	**3**	8	10	6
1	3	15	2	**4**	8	12	4
2	3	17	0	**5**	8	14	2
3	3	18	10	**6**	8	16	0
4	4	0	8	**7**	8	17	10
5	4	2	6	**8**	8	19	8
6	4	4	4	**9**	9	1	6
7	4	6	2	**100**	9	3	4
8	4	8	0	**1**	9	5	2
9	4	9	10	**2**	9	7	0
50	4	11	8	**3**	9	8	10
1	4	13	6	**4**	9	10	8
2	4	15	4	**5**	9	12	6
3	4	17	2	**6**	9	14	4
4	4	19	0	**7**	9	16	2
5	5	0	10	**8**	9	18	0
6	5	2	8	**9**	9	19	10
7	5	4	6	**110**	10	1	8
8	5	6	4	**1**	10	3	6
9	5	8	2	**2**	10	5	4
60	5	10	0	**3**	10	7	2
1	5	11	10	**4**	10	9	0
2	5	13	8	**5**	10	10	10
3	5	15	6	**6**	10	12	8
4	5	17	4	**7**	10	14	6
5	5	19	2	**8**	10	16	4
6	6	1	0	**9**	10	18	2
7	6	2	10	**120**	11	0	0

COMBINATION LINE AND HALF-TONE WORK ON ZINC

Etched on one plate.

85 Screen or Coarser



Per square inch	Minimum 14 square inches
1/9	**£1 4 6**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6d.** per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2/-** per subject if subjects are squared up, **3/-** per subject for circles or ovals, and **4/-** per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5/-** per subject if Duplex.

In any case, the extra **2/-**, **3/-**, **4/-**, or **5/-** only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

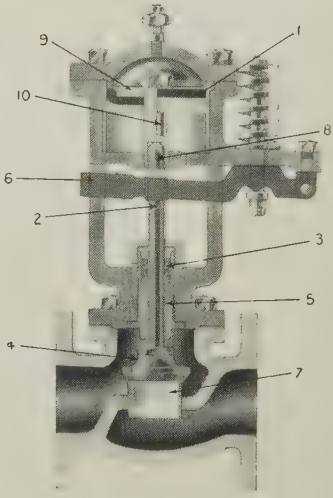
In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

If separated, the extra charge of **6d.** per subject will be made.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large size and incidental charges on page 78.

Any Screen above 85



Per square inch	Minimum 14 square inches
2/-	**£1 8 0**

Combination Line and Half-tone Work on Zinc

These prices include one line and one half-tone negative.
Extra negatives and strippings are schedule rates.

85 Screen or Coarser

Per square inch 1/9
Minimum 14 sq. ins.
£1.4.6

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	1	6	3	**68**	5	19	0
6	1	8	0	**9**	6	0	9
7	1	9	9	**70**	6	2	6
8	1	11	6	**1**	6	4	3
9	1	13	3	**2**	6	6	0
20	1	15	0	**3**	6	7	9
1	1	16	9	**4**	6	9	6
2	1	18	6	**5**	6	11	3
3	2	0	3	**6**	6	13	0
4	2	2	0	**7**	6	14	9
5	2	3	9	**8**	6	16	6
6	2	5	6	**9**	6	18	3
7	2	7	3	**80**	7	0	0
8	2	9	0	**1**	7	1	9
9	2	10	9	**2**	7	3	6
30	2	12	6	**3**	7	5	3
1	2	14	3	**4**	7	7	0
2	2	16	0	**5**	7	8	9
3	2	17	9	**6**	7	10	6
4	2	19	6	**7**	7	12	3
5	3	1	3	**8**	7	14	0
6	3	3	0	**9**	7	15	9
7	3	4	9	**90**	7	17	6
8	3	6	6	**1**	7	19	3
9	3	8	3	**2**	8	1	0
40	3	10	0	**3**	8	2	9
1	3	11	9	**4**	8	4	6
2	3	13	6	**5**	8	6	3
3	3	15	3	**6**	8	8	0
4	3	17	0	**7**	8	9	9
5	3	18	9	**8**	8	11	6
6	4	0	6	**9**	8	13	3
7	4	2	3	**100**	8	15	0
8	4	4	0	**1**	8	16	9
9	4	5	9	**2**	8	18	6
50	4	7	6	**3**	9	0	3
1	4	9	3	**4**	9	2	0
2	4	11	0	**5**	9	3	9
3	4	12	9	**6**	9	5	6
4	4	14	6	**7**	9	7	3
5	4	16	3	**8**	9	9	0
6	4	18	0	**9**	9	10	9
7	4	19	9	**110**	9	12	6
8	5	1	6	**1**	9	14	3
9	5	3	3	**2**	9	16	0
60	5	5	0	**3**	9	17	9
1	5	6	9	**4**	9	19	6
2	5	8	6	**5**	10	1	3
3	5	10	3	**6**	10	3	0
4	5	12	0	**7**	10	4	9
5	5	13	9	**8**	10	6	6
6	5	15	6	**9**	10	8	3
7	5	17	3	**120**	10	10	0

Any Screen above 85

Per square inch 2/-
Minimum 14 sq. ins.
£1.8.0

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	1	10	0	**68**	6	16	0
6	1	12	0	**9**	6	18	0
7	1	14	0	**70**	7	0	0
8	1	16	0	**1**	7	2	0
9	1	18	0	**2**	7	4	0
20	2	0	0	**3**	7	6	0
1	2	2	0	**4**	7	8	0
2	2	4	0	**5**	7	10	0
3	2	6	0	**6**	7	12	0
4	2	8	0	**7**	7	14	0
5	2	10	0	**8**	7	16	0
6	2	12	0	**9**	7	18	0
7	2	14	0	**80**	8	0	0
8	2	16	0	**1**	8	2	0
9	2	18	0	**2**	8	4	0
30	3	0	0	**3**	8	6	0
1	3	2	0	**4**	8	8	0
2	3	4	0	**5**	8	10	0
3	3	6	0	**6**	8	12	0
4	3	8	0	**7**	8	14	0
5	3	10	0	**8**	8	16	0
6	3	12	0	**9**	8	18	0
7	3	14	0	**90**	9	0	0
8	3	16	0	**1**	9	2	0
9	3	18	0	**2**	9	4	0
40	4	0	0	**3**	9	6	0
1	4	2	0	**4**	9	8	0
2	4	4	0	**5**	9	10	0
3	4	6	0	**6**	9	12	0
4	4	8	0	**7**	9	14	0
5	4	10	0	**8**	9	16	0
6	4	12	0	**9**	9	18	0
7	4	14	0	**100**	10	0	0
8	4	16	0	**1**	10	2	0
9	4	18	0	**2**	10	4	0
50	5	0	0	**3**	10	6	0
1	5	2	0	**4**	10	8	0
2	5	4	0	**5**	10	10	0
3	5	6	0	**6**	10	12	0
4	5	8	0	**7**	10	14	0
5	5	10	0	**8**	10	16	0
6	5	12	0	**9**	10	18	0
7	5	14	0	**110**	11	0	0
8	5	16	0	**1**	11	2	0
9	5	18	0	**2**	11	4	0
60	6	0	0	**3**	11	6	0
1	6	2	0	**4**	11	8	0
2	6	4	0	**5**	11	10	0
3	6	6	0	**6**	11	12	0
4	6	8	0	**7**	11	14	0
5	6	10	0	**8**	11	16	0
6	6	12	0	**9**	11	18	0
7	6	14	0	**120**	12	0	0

COMBINATION LINE AND HALF-TONE WORK ON COPPER

Etched on one plate.

Any Screen up to 150.

Per square inch	Minimum 14 square inches
2/4	£1 12 8

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of 6d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2/-** per subject if subjects are squared up, **3/-** per subject for circles or ovals, and **4/-** per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5/-** per subject if duplex.

In any case, the extra **2/-**, **3/-**, **4/-**, or **5/-** only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

If separated, the extra charge of 6d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum, 2/-.

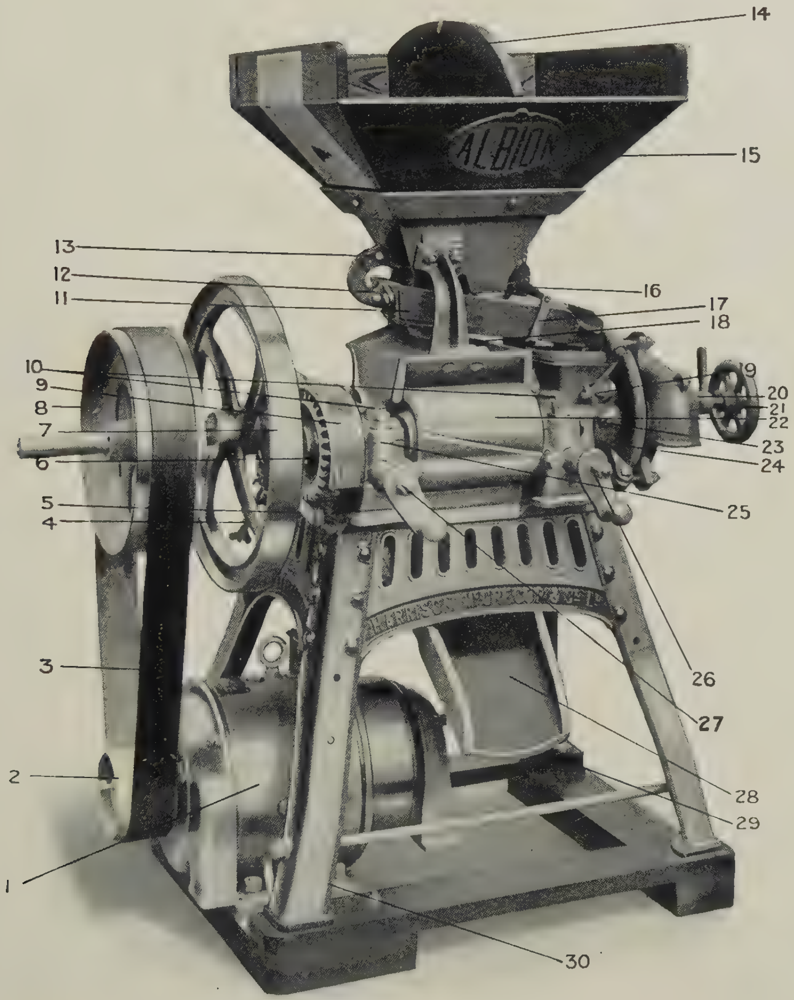
An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

These prices include one line and one half-tone negative. Extra negatives and strippings at schedule rates.

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	1	15	0	**68**	7	18	8
6	1	17	4	**9**	8	1	0
7	1	19	8	**70**	8	3	4
8	2	2	0	**1**	8	5	8
9	2	4	4	**2**	8	8	0
20	2	6	8	**3**	8	10	4
1	2	9	0	**4**	8	12	8
2	2	11	4	**5**	8	15	0
3	2	13	8	**6**	8	17	4
4	2	16	0	**7**	8	19	8
5	2	18	4	**8**	9	2	0
6	3	0	8	**9**	9	4	4
7	3	3	0	**80**	9	6	8
8	3	5	4	**1**	9	9	0
9	3	7	8	**2**	9	11	4
30	3	10	0	**3**	9	13	8
1	3	12	4	**4**	9	16	0
2	3	14	8	**5**	9	18	4
3	3	17	0	**6**	10	0	8
4	3	19	4	**7**	10	3	0
5	4	1	8	**8**	10	5	4
6	4	4	0	**9**	10	7	8
7	4	6	4	**90**	10	10	0
8	4	8	8	**1**	10	12	4
9	4	11	0	**2**	10	14	8
40	4	13	4	**3**	10	17	0
1	4	15	8	**4**	10	19	4
2	4	18	0	**5**	11	1	8
3	5	0	4	**6**	11	4	0
4	5	2	8	**7**	11	6	4
5	5	5	0	**8**	11	8	8
6	5	7	4	**9**	11	11	0
7	5	9	8	**100**	11	13	4
8	5	12	0	**1**	11	15	8
9	5	14	4	**2**	11	18	0
50	5	16	8	**3**	12	0	4
1	5	19	0	**4**	12	2	8
2	6	1	4	**5**	12	5	0
3	6	3	8	**6**	12	7	4
4	6	6	0	**7**	12	9	8
5	6	8	4	**8**	12	12	0
6	6	10	8	**9**	12	14	4
7	6	13	0	**110**	12	16	8
8	6	15	4	**1**	12	19	0
9	6	17	8	**2**	13	1	4
60	7	0	0	**3**	13	3	8
1	7	2	4	**4**	13	6	0
2	7	4	8	**5**	13	8	4
3	7	7	0	**6**	13	10	8
4	7	9	4	**7**	13	13	0
5	7	11	8	**8**	13	15	4
6	7	14	0	**9**	13	17	8
7	7	16	4	**120**	14	0	0

COMBINATION LINE AND HALF-TONE ON COPPER

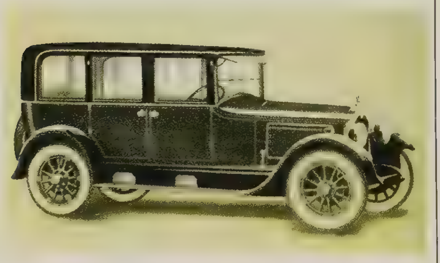


DUPLEX HALF-TONE

From monochrome original by two half-tone negatives, but without colour separation, the second plate acting merely as a tint to reinforce the key, producing a double-toned effect.

NOTE.—If a colour effect is required, entailing colour separation etching, the charge is as two-colour half-tone.

Squared, Circles or Ovals



Per square inch	Minimum 14 square inches
2/6	**£1 15 0**

Grouping

Two subjects may be included in one minimum, if worked together; but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per subject.

Blocks made from originals containing several subjects, in which the screen is left in the background, the subjects being so connected that they form one complete picture, will be charged at the overall measurement.

Surcharges for Individual Treatment

When half-tone originals (or one original containing two or more subjects) are sent in for uniform reduction and are of a suitable nature for working together, they will be charged at the respective scale rate overall plus **2**/- per subject if subjects are squared up, **3**/- per subject for circles or ovals, and **4**/- per subject if subjects are vignetted, cut out, deep etched, or combination work, and **5**/- per subject if duplex.

In any case, the extra **2**/-, **3**/-, **4**/-, or **5**/- only operates beyond the first two subjects, and does not apply to any subject or subjects in the group over half-minimum size.

In no case shall the total surcharge exceed 100% of the inch rate, or of the corresponding minimum.

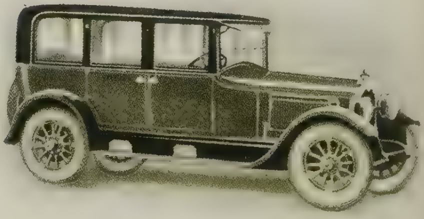
If separated, the extra charge of **6**d. per subject will be made.

For half-tones from coloured copies necessitating Iso or Panchromatic treatment, produced direct, an extra charge will be made of 10%, minimum **2**/-.

An irregular shaped block made from copy of two rectangular subjects pasted up together will be charged at CIRCLE and OVAL rate. Similar blocks comprised of more than two subjects will be charged at SIMPLE CUT-OUT rate. Where such a block is made from two or more copies and stripped into position, the extra negatives and strippings will be charged according to schedule, in addition to the inch rate.

Please see also allowances on large sizes and incidental charges on page 78.

Cut-away Backgrounds or Vignetted



Per square inch	Minimum 14 square inches
3/-	**£2 2 0**

Squared, Circles or Ovals

Per square inch 2/6
Minimum 14 sq. ins.

£1.15.0

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	1	17	6	**68**	8	10	0
6	2	0	0	**9**	8	12	6
7	2	2	6	**70**	8	15	0
8	2	5	0	**1**	8	17	6
9	2	7	6	**2**	9	0	0
20	2	10	0	**3**	9	2	6
1	2	12	6	**4**	9	5	0
2	2	15	0	**5**	9	7	6
3	2	17	6	**6**	9	10	0
4	3	0	0	**7**	9	12	6
5	3	2	6	**8**	9	15	0
6	3	5	0	**9**	9	17	6
7	3	7	6	**80**	10	0	0
8	3	10	0	**1**	10	2	6
9	3	12	6	**2**	10	5	0
30	3	15	0	**3**	10	7	6
1	3	17	6	**4**	10	10	0
2	4	0	0	**5**	10	12	6
3	4	2	6	**6**	10	15	0
4	4	5	0	**7**	10	17	6
5	4	7	6	**8**	11	0	0
6	4	10	0	**9**	11	2	6
7	4	12	6	**90**	11	5	0
8	4	15	0	**1**	11	7	6
9	4	17	6	**2**	11	10	0
40	5	0	0	**3**	11	12	6
1	5	2	6	**4**	11	15	0
2	5	5	0	**5**	11	17	6
3	5	7	6	**6**	12	0	0
4	5	10	0	**7**	12	2	6
5	5	12	6	**8**	12	5	0
6	5	15	0	**9**	12	7	6
7	5	17	6	**100**	12	10	0
8	6	0	0	**1**	12	12	6
9	6	2	6	**2**	12	15	0
50	6	5	0	**3**	12	17	6
1	6	7	6	**4**	13	0	0
2	6	10	0	**5**	13	2	6
3	6	12	6	**6**	13	5	0
4	6	15	0	**7**	13	7	6
5	6	17	6	**8**	13	10	0
6	7	0	0	**9**	13	12	6
7	7	2	6	**110**	13	15	0
8	7	5	0	**1**	13	17	6
9	7	7	6	**2**	14	0	0
60	7	10	0	**3**	14	2	6
1	7	12	6	**4**	14	5	0
2	7	15	0	**5**	14	7	6
3	7	17	6	**6**	14	10	0
4	8	0	0	**7**	14	12	6
5	8	2	6	**8**	14	15	0
6	8	5	0	**9**	14	17	6
7	8	7	6	**120**	15	0	0

Cutaway Background or Vignetted

Per square inch 3/-
Minimum 14 sq. ins.

£2.2.0

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
15	2	5	0	**68**	10	4	0
6	2	8	0	**9**	10	7	0
7	2	11	0	**70**	10	10	0
8	2	14	0	**1**	10	13	0
9	2	17	0	**2**	10	16	0
20	3	0	0	**3**	10	19	0
1	3	3	0	**4**	11	2	0
2	3	6	0	**5**	11	5	0
3	3	9	0	**6**	11	8	0
4	3	12	0	**7**	11	11	0
5	3	15	0	**8**	11	14	0
6	3	18	0	**9**	11	17	0
7	4	1	0	**80**	12	0	0
8	4	4	0	**1**	12	3	0
9	4	7	0	**2**	12	6	0
30	4	10	0	**3**	12	9	0
1	4	13	0	**4**	12	12	0
2	4	16	0	**5**	12	15	0
3	4	19	0	**6**	12	18	0
4	5	2	0	**7**	13	1	0
5	5	5	0	**8**	13	4	0
6	5	8	0	**9**	13	7	0
7	5	11	0	**90**	13	10	0
8	5	14	0	**1**	13	13	0
9	5	17	0	**2**	13	16	0
40	6	0	0	**3**	13	19	0
1	6	3	0	**4**	14	2	0
2	6	6	0	**5**	14	5	0
3	6	9	0	**6**	14	8	0
4	6	12	0	**7**	14	11	0
5	6	15	0	**8**	14	14	0
6	6	18	0	**9**	14	17	0
7	7	1	0	**100**	15	0	0
8	7	4	0	**1**	15	3	0
9	7	7	0	**2**	15	6	0
50	7	10	0	**3**	15	9	0
1	7	13	0	**4**	15	12	0
2	7	16	0	**5**	15	15	0
3	7	19	0	**6**	15	18	0
4	8	2	0	**7**	16	1	0
5	8	5	0	**8**	16	4	0
6	8	8	0	**9**	16	7	0
7	8	11	0	**110**	16	10	0
8	8	14	0	**1**	16	13	0
9	8	17	0	**2**	16	16	0
60	9	0	0	**3**	16	19	0
1	9	3	0	**4**	17	2	0
2	9	6	0	**5**	17	5	0
3	9	9	0	**6**	17	8	0
4	9	12	0	**7**	17	11	0
5	9	15	0	**8**	17	14	0
6	9	18	0	**9**	17	17	0
7	10	1	0	**120**	18	0	0

HALF-TONE COLOUR WORK

TWO COLOUR

Produced by two half-tone negatives from coloured original.

Squared, Circles, or Ovals

Minimum 30 square inches	Per square inch beyond 30 square inches
£4 10 0	**2/6**

Grouping of 2, 3, and 4 Colour Flat Copies

The reduction in price beyond 30 square inches will also apply in the case of blocks containing more than one subject, providing the originals are similar in character and are photographed together and etched as one plate, but the photographic reduction must not be greater than ⅙th of the longest measurement and the total group must not exceed 240 square inches.

Surcharges (not applying to Carpets and Linoleums)

In the case of blocks containing three or more subjects, each less than a half-minimum, there shall be added the surcharges, as follows, for each subject **(beyond the first two)**, but in no case shall the total surcharge exceed 33⅓% of the inch rate, or of the corresponding minimum. If delivered mounted separately the usual separation charges to be made.

Surcharges for Individual Treatment

	Per Subject
Two Colour	**7/6**
Three or Four Colour ..	**15/-**

For example :
An original containing 6 subjects, to be reproduced in Two colours, squared, size 6 × 5½ ins., and delivered as 6 separate sets of blocks.

	£	s.	d.
30 square inches	**4**	**10**	**0**
3 square inches @ **2/6** ..		**7**	**6**
Surcharge on 4 subjects @ **7/6**	**1**	**10**	**0**
Separating into 6 sets (12 blocks) @ **6**d. per block		**6**	**0**
	£6	**13**	**6**

In the following example, as the surcharge by the previous method would exceed 33⅓% of the inch rate, the maximum surcharge of 33⅓% is substituted. An original containing 9 subjects to be reproduced in Two colours, squared, size 6 × 5½ ins., and delivered as 9 separate sets of blocks, would be charged as follows :

	£	s.	d.
30 square inches	**4**	**10**	**0**
3 square inches @ **2/6** ..		**7**	**6**
Plus surcharge, 33⅓% ..	**1**	**12**	**6**
Separating into 9 sets (18 blocks) @ **6**d. per block		**9**	**0**
	£6	**19**	**0**

Cut-away Backgrounds or Vignetted

Minimum 30 square inches	Per square inch beyond 30 square inches
£5 5 0	**2/9**

Squared, Circles or Ovals

Minimum 30 sq. ins. **£4.10.0**

Per square inch beyond 30 ins. - **2/6**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
31	4	12	6	76	10	5	0
2	4	15	0	7	10	7	6
3	4	17	6	8	10	10	0
4	5	0	0	9	10	12	6
5	5	2	6	80	10	15	0
6	5	5	0	1	10	17	6
7	5	7	6	2	11	0	0
8	5	10	0	3	11	2	6
9	5	12	6	4	11	5	0
40	5	15	0	5	11	7	6
1	5	17	6	6	11	10	0
2	6	0	0	7	11	12	6
3	6	2	6	8	11	15	0
4	6	5	0	9	11	17	6
5	6	7	6	90	12	0	0
6	6	10	0	1	12	2	6
7	6	12	6	2	12	5	0
8	6	15	0	3	12	7	6
9	6	17	6	4	12	10	0
50	7	0	0	5	12	12	6
1	7	2	6	6	12	15	0
2	7	5	0	7	12	17	6
3	7	7	6	8	13	0	0
4	7	10	0	9	13	2	6
5	7	12	6	100	13	5	0
6	7	15	0	1	13	7	6
7	7	17	6	2	13	10	0
8	8	0	0	3	13	12	6
9	8	2	6	4	13	15	0
60	8	5	0	5	13	17	6
1	8	7	6	6	14	0	0
2	8	10	0	7	14	2	6
3	8	12	6	8	14	5	0
4	8	15	0	9	14	7	6
5	8	17	6	110	14	10	0
6	9	0	0	1	14	12	6
7	9	2	6	2	14	15	0
8	9	5	0	3	14	17	6
9	9	7	6	4	15	0	0
70	9	10	0	5	15	2	6
1	9	12	6	6	15	5	0
2	9	15	0	7	15	7	6
3	9	17	6	8	15	10	0
4	10	0	0	9	15	12	6
5	10	2	6	120	15	15	0

Cut-away Backgrounds or Vignettes

Minimum 30 sq. ins. **£5.5.0**

Per square inch beyond 30 ins. - **2/9**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
31	5	7	9	76	11	11	6
2	5	10	6	7	11	14	3
3	5	13	3	8	11	17	0
4	5	16	0	9	11	19	9
5	5	18	9	80	12	2	6
6	6	1	6	1	12	5	3
7	6	4	3	2	12	8	0
8	6	7	0	3	12	10	9
9	6	9	9	4	12	13	6
40	6	12	6	5	12	16	3
1	6	15	3	6	12	19	0
2	6	18	0	7	13	1	9
3	7	0	9	8	13	4	6
4	7	3	6	9	13	6	3
5	7	6	3	90	13	10	0
6	7	9	0	1	13	12	9
7	7	11	9	2	13	15	6
8	7	14	6	3	13	18	3
9	7	17	3	4	14	1	0
50	8	0	0	5	14	3	9
1	8	2	9	6	14	6	6
2	8	5	6	7	14	9	3
3	8	8	3	8	14	12	0
4	8	11	0	9	14	14	9
5	8	13	9	100	14	17	6
6	8	16	6	1	15	0	3
7	8	19	3	2	15	3	0
8	9	2	0	3	15	5	9
9	9	4	9	4	15	8	6
60	9	7	6	5	15	11	3
1	9	10	3	6	15	14	0
2	9	13	0	7	15	16	9
3	9	15	9	8	15	19	6
4	9	18	6	9	16	2	3
5	10	1	3	110	16	5	0
6	10	4	0	1	16	7	9
7	10	6	9	2	16	10	6
8	10	9	6	3	16	13	3
9	10	12	3	4	16	16	0
70	10	15	0	5	16	18	9
1	10	17	9	6	17	1	6
2	11	0	6	7	17	4	3
3	11	3	3	8	17	7	0
4	11	6	0	9	17	9	9
5	11	8	9	120	17	12	6

HALF-TONE COLOUR WORK

THREE COLOUR

From flat copy, either colour or mono-chrome original.

Squared, Circles or Ovals

Minimum 30 square inches	Per square inch beyond 30 square inches
£8 5 0	**4/-**

Grouping of 2, 3, and 4 Colour Flat Copies

The reduction in price beyond 30 square inches will also apply in the case of blocks containing more than one subject, providing the originals are similar in character and are photographed together and etched as one plate, but the photographic reduction must not be greater than ⅙th of the longest measurement and the total group must not exceed 240 square inches.

Surcharges (not applying to Carpets and Linoleums)

Two subjects may be included in one minimum if worked together, but, however small, they will be charged as half-minimums, plus the separating charge of **6**d. per block.

In the case of blocks containing three or more subjects, each less than a half-minimum, there shall be added the surcharges, as follows, for each subject **(beyond the first two),** but in no case shall the total surcharge exceed 33⅓% of the inch rate, or of the corresponding minimum. If delivered mounted separately the usual separation charges to be made.

Surcharges for Individual Treatment

	Per Subject
Duplex Half-tone	**5/-**
Two Colour	**7/6**
Three or Four Colour	**15/-**

For example :

An original containing 6 subjects, to be reproduced in three colours, squared, size 6 × 5½ ins., and delivered as 6 separate sets of blocks.

	£	*s.*	*d.*
Charge 30 ins. at **5/6** and 3 ins. at **4**/-	**8**	**17**	**0**
Surcharge on 4 subjects at **15**/- per subject.. ..	**3**	**0**	**0**
Separating into 6 sets (18 blocks) at **6**d. per block..	**0**	**9**	**0**
	£12	**6**	**0**

In the following example, as the surcharge by the previous method would exceed 33⅓% of the inch rate, the maximum surcharge of 33⅓% is substituted. An original containing 9 subjects to be reproduced in three colours, squared, size 6 × 5½ ins., and delivered as 9 separate sets of blocks, would be charged :

	£	*s.*	*d.*
Charge 30 ins. at **5/6** and 3 ins. at **4**/-	**8**	**17**	**0**
Plus surcharge 33⅓% ..	**2**	**19**	**0**
Separating into 9 sets (27 blocks) at **6**d. per block..	**0**	**13**	**6**
	£12	**9**	**6**

Cut-away Backgrounds or Vignetted

Minimum 30 square inches	Per square inch beyond 30 square inches
£9 15 0	**4/9**

Squared, Circles or Ovals

Minimum 30 sq. ins. **£8.5.0**

Per square inch beyond 30 ins. - 4/-

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
31	8	9	0	**76**	17	9	0
2	8	13	0	**7**	17	13	0
3	8	17	0	**8**	17	17	0
4	9	1	0	**9**	18	1	0
5	9	5	0	**80**	18	5	0
6	9	9	0	**1**	18	9	0
7	9	13	0	**2**	18	13	0
8	9	17	0	**3**	18	17	0
9	10	1	0	**4**	19	1	0
40	10	5	0	**5**	19	5	0
1	10	9	0	**6**	19	9	0
2	10	13	0	**7**	19	13	0
3	10	17	0	**8**	19	17	0
4	11	1	0	**9**	20	1	0
5	11	5	0	**90**	20	5	0
6	11	9	0	**1**	20	9	0
7	11	13	0	**2**	20	13	0
8	11	17	0	**3**	20	17	0
9	12	1	0	**4**	21	1	0
50	12	5	0	**5**	21	5	0
1	12	9	0	**6**	21	9	0
2	12	13	0	**7**	21	13	0
3	12	17	0	**8**	21	17	0
4	13	1	0	**9**	22	1	0
5	13	5	0	**100**	22	5	0
6	13	9	0	**1**	22	9	0
7	13	13	0	**2**	22	13	0
8	13	17	0	**3**	22	17	0
9	14	1	0	**4**	23	1	0
60	14	5	0	**5**	23	5	0
1	14	9	0	**6**	23	9	0
2	14	13	0	**7**	23	13	0
3	14	17	0	**8**	23	17	0
4	15	1	0	**9**	24	1	0
5	15	5	0	**110**	24	5	0
6	15	9	0	**1**	24	9	0
7	15	13	0	**2**	24	13	0
8	15	17	0	**3**	24	17	0
9	16	1	0	**4**	25	1	0
70	16	5	0	**5**	25	5	0
1	16	9	0	**6**	25	9	0
2	16	13	0	**7**	25	13	0
3	16	17	0	**8**	25	17	0
4	17	1	0	**9**	26	1	0
5	17	5	0	**120**	26	5	0

Cut-away Backgrounds or Vignetted

Minimum 30 sq. ins. **£9.15.0**

Per square inch beyond 30 ins. - 4/9

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
31	9	19	9	**76**	20	13	6
2	10	4	6	**7**	20	18	3
3	10	9	3	**8**	21	3	0
4	10	14	0	**9**	21	7	9
5	10	18	9	**80**	21	12	6
6	11	3	6	**1**	21	17	3
7	11	8	3	**2**	22	2	0
8	11	13	0	**3**	22	6	9
9	11	17	9	**4**	22	11	6
40	12	2	6	**5**	22	16	3
1	12	7	3	**6**	23	1	0
2	12	12	0	**7**	23	5	9
3	12	16	9	**8**	23	10	6
4	13	1	6	**9**	23	15	3
5	13	6	3	**90**	24	0	0
6	13	11	0	**1**	24	4	9
7	13	15	9	**2**	24	9	6
8	14	0	6	**3**	24	14	3
9	14	5	3	**4**	24	19	0
50	14	10	0	**5**	25	3	9
1	14	14	9	**6**	25	8	6
2	14	19	6	**7**	25	13	3
3	15	4	3	**8**	25	18	0
4	15	9	0	**9**	26	2	9
5	15	13	9	**100**	26	7	6
6	15	18	6	**1**	26	12	3
7	16	3	3	**2**	26	17	0
8	16	8	0	**3**	27	1	9
9	16	12	9	**4**	27	6	6
60	16	17	6	**5**	27	11	3
1	17	2	3	**6**	27	16	0
2	17	7	0	**7**	28	0	9
3	17	11	9	**8**	28	5	6
4	17	16	6	**9**	28	10	3
5	18	1	3	**110**	28	15	0
6	18	6	0	**1**	28	19	9
7	18	10	9	**2**	29	4	6
8	18	15	6	**3**	29	9	3
9	19	0	3	**4**	29	14	0
70	19	5	0	**5**	29	18	9
1	19	9	9	**6**	30	3	6
2	19	14	6	**7**	30	8	3
3	19	19	3	**8**	30	13	0
4	20	4	0	**9**	30	17	9
5	20	8	9	**120**	31	2	6

HALF-TONE COLOUR WORK

FOUR COLOUR

From flat copy, either colour or mono-chrome original.

Squared, Circles or Ovals

Minimum 30 square inches	Per square inch beyond 30 square inches
£10 2 6	**4/9**

Grouping of 2, 3, and 4 Colour Flat Copies

The reduction in price beyond 30 square inches will also apply in the case of blocks containing more than one subject, providing the originals are similar in character and are photographed together and etched as one plate, but the photographic reduction must not be greater than ⅙th of the longest measurement and the total group must not exceed 240 square inches.

Surcharges (not applying to Carpets and Linoleums)

In the case of blocks containing three or more subjects, each less than a half-minimum, there shall be added the surcharges, as follows, for each subject **beyond the first two,** but in no case shall the total surcharge exceed 33⅓% of the inch rate, or of the corresponding minimum. If delivered mounted separately the usual separation charges to be made.

Surcharges Individual Treatment

Duplex Half-tone	Per Subject	**5/-**
Two Colour ..	do.	**7/6**
Three or Four Colour	do.	**15/-**

For example :

An original containing 6 subjects, to be reproduced in colours, squared, size 6×5½ ins., and delivered as 6 separate sets of blocks.

	£	s.	d.
30 square inches	**10**	**2**	**6**
3 square inches @ **4/9** ..		**14**	**3**
Surcharge 4 subjects, @ **15**/-	**3**	**0**	**0**
Separating into 6 sets (24 blocks) @ **6**d. per block		**12**	**0**
	£14	**8**	**9**

In the following example, as the surcharge by the previous method would exceed 33⅓% of the inch rate, the maximum surcharge of 33⅓% is substituted. An original containing 9 subjects to be reproduced in three colours, squared size 6 × 5½ ins., and delivered as 9 separate sets of blocks, would be charged :

	£	s.	d.
30 square inches	**10**	**2**	**6**
3 square inches @ **4/9** ..		**14**	**3**
Plus surcharge, 33⅓% ..	**3**	**12**	**3**
Separating into 9 sets (36 blocks) @ **6**d. per block		**18**	**0**
	£15	**7**	**0**

Cut-away Backgrounds or Vignetted

Minimum 30 square inches	Per square inch beyond 30 square inches
£11 5 0	**5/6**

Squared, Circles or Ovals

Minimum 30 sq. ins. **£10.2.6**

Per square inch beyond 30 ins. - **4/9**

Sq. ins.	*£*	*s.*	*d.*
31	10	7	3
2	10	12	0
3	10	16	9
4	11	1	6
5	11	6	3
6	11	11	0
7	11	15	9
8	12	0	6
9	12	5	3
40	12	10	0
1	12	14	9
2	12	19	6
3	13	4	3
4	13	9	0
5	13	13	9
6	13	18	6
7	14	3	3
8	14	8	0
9	14	12	9
50	14	17	6
1	15	2	3
2	15	7	0
3	15	11	9
4	15	16	6
5	16	1	3
6	16	6	0
7	16	10	9
8	16	15	6
9	17	0	3
60	17	5	0
1	17	9	9
2	17	14	6
3	17	19	3
4	18	4	0
5	18	8	9
6	18	13	6
7	18	18	3
8	19	3	0
9	19	7	9
70	19	12	6
1	19	17	3
2	20	2	0
3	20	6	9
4	20	11	6
5	20	16	3
76	21	1	0
7	21	5	9
8	21	10	6
9	21	15	3
80	22	0	0
1	22	4	9
2	22	9	6
3	22	14	3
4	22	19	0
5	23	3	9
6	23	8	6
7	23	13	3
8	23	18	0
9	24	2	9
90	24	7	6
1	24	12	3
2	24	17	0
3	25	1	9
4	25	6	6
5	25	11	3
6	25	16	0
7	26	0	9
8	26	5	6
9	26	10	3
100	26	15	0
1	26	19	9
2	27	4	6
3	27	9	3
4	27	14	0
5	27	18	9
6	28	3	6
7	28	8	3
8	28	13	0
9	28	17	9
110	29	2	6
1	29	7	3
2	29	12	0
3	29	16	9
4	30	1	6
5	30	6	3
6	30	11	0
7	30	15	9
8	31	0	6
9	31	5	3
120	31	10	0

Cut-away Backgrounds or Vignettes

Minimum 30 sq. ins. **£11.5.0**

Per square inch beyond 30 ins.. - **5/6**

Sq. ins.	*£*	*s.*	*d.*
31	11	10	6
2	11	16	0
3	12	1	6
4	12	7	0
5	12	12	6
6	12	18	0
7	13	3	6
8	13	9	0
9	13	14	6
40	14	0	0
1	15	4	6
2	14	11	0
3	14	16	6
4	15	2	0
5	15	7	6
6	15	13	0
7	15	18	6
8	16	4	0
9	16	9	6
50	16	15	0
1	17	0	6
2	17	6	0
3	17	11	6
4	17	17	0
5	18	2	6
6	18	8	0
7	18	13	6
8	18	19	0
9	19	4	6
60	19	10	0
1	19	15	6
2	20	1	0
3	20	6	6
4	20	12	0
5	20	17	6
6	21	3	0
7	21	8	6
8	21	14	0
9	21	19	6
70	22	5	0
1	22	10	6
2	22	16	0
3	23	1	6
4	23	7	0
5	23	12	6
76	23	18	0
7	24	3	6
8	24	9	0
9	24	14	6
80	25	0	0
1	25	5	6
2	25	11	0
3	25	16	6
4	26	2	0
5	26	7	6
6	26	13	0
7	26	18	6
8	27	4	0
9	27	9	6
90	27	15	0
1	28	0	6
2	28	6	0
3	28	11	6
4	28	17	0
5	29	2	6
6	29	8	0
7	29	13	6
8	29	19	0
9	30	4	6
100	30	10	0
1	30	15	6
2	31	1	0
3	31	6	6
4	31	12	0
5	31	17	6
6	32	3	0
7	32	8	6
8	32	14	0
9	32	19	6
110	33	5	0
1	33	10	6
2	33	16	0
3	34	1	6
4	34	7	0
5	34	12	6
6	34	18	0
7	35	3	6
8	35	9	0
9	35	14	6
120	36	0	0

AUTOCHROME, OBJECT INDIRECT AND GALLERY WORK

Three or Four Colour

Squared, Circles or Ovals

Minimum 30 square inches	Per square inch, beyond 30 square inches Single subjects	Grouped subjects
£11 5 0	**5/6**	**7/6**

Where a number of subjects have to be photographed on one plate an extra charge will be made for staging according to time taken.

Gallery Work

Will be considered as all work from pictures or objects of which colour negatives had to be made elsewhere than in the engraver's studios, irrespective of whether the negatives are made by the engraver or supplied by the customer.

Colour Negatives for Gallery Work

For taking colour negatives in galleries, or other than in the process engraver's own studios, a charge of **£4 10s. 0d.** for one subject, and **£3 7s. 6d.** each for the second and subsequent subjects, ordered at the same time, at the same gallery, plus fares and expenses.

Surcharges on Grouped Subjects of Autochrome, Object, Gallery and Indirect Work

In the case of blocks containing three or more subjects, each less than a half-minimum, there shall be added the surcharges, as follows, for each subject **beyond the first two,** but in no case shall the total surcharge exceed 33⅓% of the inch rate, or of the corresponding minimum. If delivered mounted separately the usual separation charges to be made.

Surcharges for Individual Treatment

	Per Subject
Two Colour	**7/6**
Three or Four Colour	**5/-**

For example :
Six objects, grouped, to be reproduced in three or four colours, squared, circles or ovals, size 6 × 5½ ins., and delivered as 6 separate sets of blocks.

	£	s.	d.
Charge over-all at **7/6** per square inch	**12**	**7**	**6**
Surcharge on 4 subjects, at **15/-** per subject	**3**	**0**	**0**
*Separating into 6 sets (18 blocks) at **6d.** per block	**0**	**9**	**0**
	£15	**16**	**6**

In the following example, as the surcharge by the previous method would exceed 33⅓% of the inch rate, the maximum surcharge of 33⅓% is substituted. Nine objects, grouped, to be reproduced in three or four colours, squared, circles or ovals, size 6 × 5½ ins., and delivered as 9 separate sets of blocks, would be charged as follows :—

	£	s.	d.
Charge overall at **7/6** per square inch	**12**	**7**	**6**
Plus surcharge 33⅓%	**4**	**2**	**6**
*Separating into 9 sets (27 blocks) at 6d. per block	**0**	**13**	**6**
	£17	**3**	**6**

*If four-colour, the separation charge would be 6 sets (24 blocks) at **6d.** per block, **12s.** in the first example and, in the second example, 9 sets (36 blocks) at **6d.** per block, **18s.**

Cut-away Backgrounds or Vignetted

Minimum 30 square inches	Per square inch, beyond 30 square inches, Single subjects	Grouped subjects
£12 0 0	**6/3**	**8/-**

Squared, Circles, or Ovals

Minimum 30 sq. ins. **£11.5.0**

Per square inch beyond 30 ins.

SINGLE SUBJECTS - - - 5/6

GROUPED SUBJECTS - - - 7/6

SQ. INS.	*£*	*s.*	*d.*	SQ. INS.	*£*	*s.*	*d.*
31	11	10	6	**76**	23	18	0
2	11	16	0	**7**	24	3	6
3	12	1	6	**8**	24	9	0
4	12	7	0	**9**	24	14	6
5	12	12	6	**80**	25	0	0
6	12	18	0	**81**	25	5	6
7	13	3	6	**2**	25	11	0
8	13	9	0	**3**	25	16	6
9	13	14	6	**4**	26	2	0
40	14	0	0	**5**	26	7	6
41	14	5	6	**6**	26	13	0
2	14	11	0	**7**	26	18	6
3	14	16	6	**8**	27	4	0
4	15	2	0	**9**	27	9	6
5	15	7	6	**90**	27	15	0
6	15	13	0	**91**	28	0	6
7	15	18	6	**2**	28	6	0
8	16	4	0	**3**	28	11	6
9	16	9	6	**4**	28	17	0
50	16	15	0	**5**	29	3	6
51	17	0	6	**6**	29	8	0
2	17	6	0	**7**	29	13	6
3	17	11	6	**8**	29	19	0
4	17	17	0	**9**	30	4	6
5	18	2	6	**100**	30	10	0
6	18	8	0	**101**	30	15	6
7	18	13	6	**2**	31	1	0
8	18	19	0	**3**	31	6	6
9	19	4	6	**4**	31	12	0
60	19	10	0	**5**	31	17	6
61	19	15	6	**6**	32	3	0
2	20	1	0	**7**	32	8	6
3	20	6	6	**8**	32	14	0
4	20	12	0	**9**	32	19	6
5	20	17	6	**110**	33	5	0
6	21	3	0	**111**	33	10	6
7	21	8	6	**2**	33	16	0
8	21	14	0	**3**	34	1	6
9	21	19	6	**4**	34	7	0
70	22	5	0	**5**	34	12	6
71	22	10	6	**6**	34	18	0
2	22	16	0	**7**	35	3	6
3	23	1	6	**8**	35	9	0
4	23	7	0	**9**	35	14	6
5	23	12	6	**120**	36	0	0

Cut-away Backgrounds or Vignetted

Minimum 30 sq. ins. **£12.0.0**

Per square inch beyond 30 ins.

SINGLE SUBJECTS - - - - 6/3

GROUPED SUBJECTS - - - 8/-

SQ. INS.	*£*	*s.*	*d.*	SQ. INS.	*£*	*s.*	*d.*
31	12	6	3	**76**	26	7	6
2	12	12	6	**7**	26	13	9
3	12	18	9	**8**	27	0	0
4	13	5	0	**9**	27	6	3
5	13	11	3	**80**	27	12	6
6	13	17	6	**81**	27	18	9
7	14	3	9	**2**	28	5	0
8	14	10	0	**3**	28	11	3
9	14	16	3	**4**	28	17	6
40	15	2	6	**5**	29	3	9
41	15	8	9	**6**	29	10	0
2	15	15	0	**7**	29	16	3
3	16	1	3	**8**	30	2	6
4	16	7	6	**9**	30	8	9
5	16	13	9	**90**	30	15	0
6	17	0	0	**91**	31	1	3
7	17	6	3	**2**	31	7	6
8	17	12	6	**3**	31	13	9
9	17	18	9	**4**	32	0	0
50	18	5	0	**5**	32	6	3
51	18	11	3	**6**	32	12	6
2	18	17	6	**7**	32	18	9
3	19	3	9	**8**	33	5	0
4	19	10	0	**9**	33	11	3
5	19	16	3	**100**	33	17	6
6	20	2	6	**101**	34	3	9
7	20	8	9	**2**	34	10	0
8	20	15	10	**3**	34	16	3
9	21	1	3	**4**	35	2	6
60	21	7	6	**5**	35	8	9
61	21	13	9	**6**	35	15	0
2	22	0	0	**7**	36	1	3
3	22	6	3	**8**	36	7	6
4	22	12	6	**9**	36	13	9
5	22	18	9	**110**	37	0	0
6	23	5	0	**111**	37	6	3
7	23	11	3	**2**	37	12	6
8	23	17	6	**3**	37	18	9
9	24	3	9	**4**	38	5	0
70	24	10	0	**5**	38	11	3
71	24	16	3	**6**	38	17	6
2	25	2	6	**7**	39	3	9
3	25	8	9	**8**	39	10	0
4	25	15	0	**9**	39	16	3
5	26	1	3	**120**	40	2	6

CARPETS AND LINOLEUMS

THREE OR FOUR COLOURS

Carpets and Rugs from Articles

Minimum 40 square inches	Per sq. inch, beyond 40 square inches	
	Single,	Grouped
£17 0 0	**7/-**	**8/6**

Colour Negatives for Gallery Work

For taking colour negatives in galleries, or other than in the process engraver's own studios, a charge of **£4 10**s. **0**d. for one subject, and **£3 7**s. **6**d. each for the second and subsequent subjects, ordered at the same time, at the same gallery, plus fares and expenses.

Gallery Work

Shall be considered as all work from pictures or objects photographed elsewhere than in the engraver's studios.

Grouping—Surcharges on Carpet Work and Linoleums

When two or more subjects are reproduced together, either from articles or drawings, a surcharge of 30/- will be charged on the SECOND and each subsequent subject of less than 40 square inches, irrespective of whether they are separate blocks or grouped together to form one subject.

For Carpets and Linoleums the maximum surcharge is 50%.

Carpets and Rugs from Drawings and Linos direct from Articles or from Drawings and Prints up to 1/6th Linear Reduction.

Minimum 40 square inches	Per sq. inch, beyond 40 square inches	
	Single	Grouped
£15 6 0	**6/4**	**7/6**

N.B.—If reduction of Lino Work is more than ⅙th Linear, the rate will be as for Carpets.

Carpets and Rugs
from Articles

Minimum 40 sq. ins. **£17.0.0**

Per square inch beyond 40 ins.

SINGLE SUBJECTS - - - - 7/-
GROUPED SUBJECTS - - - 8/6

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
41	17	7	0	**81**	31	7	0
2	17	14	0	**2**	31	14	0
3	18	1	0	**3**	32	1	0
4	18	8	0	**4**	32	8	0
5	18	15	0	**5**	32	15	0
6	19	2	0	**6**	33	2	0
7	19	9	0	**7**	33	9	0
8	19	16	0	**8**	33	16	0
9	20	3	0	**9**	34	3	0
50	20	10	0	**90**	34	10	0
51	20	17	0	**91**	34	17	0
2	21	4	0	**2**	35	4	0
3	21	11	0	**3**	35	11	0
4	21	18	0	**4**	35	18	0
5	22	5	0	**5**	36	5	0
6	22	12	0	**6**	36	12	0
7	22	19	0	**7**	36	19	0
8	23	6	0	**8**	37	6	0
9	23	13	0	**9**	37	13	0
60	24	0	0	**100**	38	0	0
61	24	7	0	**101**	38	7	0
2	24	14	0	**2**	38	14	0
3	25	1	0	**3**	39	1	0
4	25	8	0	**4**	39	8	0
5	25	15	0	**5**	39	15	0
6	26	2	0	**6**	40	2	0
7	26	9	0	**7**	40	9	0
8	26	16	0	**8**	40	16	0
9	27	3	0	**9**	41	3	0
70	27	10	0	**110**	41	10	0
71	27	17	0	**111**	41	17	0
2	28	4	0	**2**	42	4	0
3	28	11	0	**3**	42	11	0
4	28	18	0	**4**	42	18	0
5	29	5	0	**5**	43	5	0
6	29	12	0	**6**	43	12	0
7	29	19	0	**7**	43	19	0
8	30	6	0	**8**	44	6	0
9	30	13	0	**9**	44	13	0
80	31	0	0	**120**	45	0	0

Carpets from Drawings and Linos direct or from Drawings and Prints up to ⅛th Linear Reduction

Minimum 40 sq. ins. **£15.6.0**

Per square inch beyond 40 ins.

SINGLE SUBJECTS - - - - 6/4
GROUPED SUBJECTS - - - 7/6

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
41	15	12	4	**81**	28	5	8
2	15	18	8	**2**	28	12	0
3	16	5	0	**3**	28	18	4
4	16	11	4	**4**	29	4	8
5	16	17	8	**5**	29	11	0
6	17	4	0	**6**	29	17	4
7	17	10	4	**7**	30	3	8
8	17	16	8	**8**	30	10	0
9	18	3	0	**9**	30	16	4
50	18	9	4	**90**	31	2	8
51	18	15	8	**91**	31	9	0
2	19	2	0	**2**	31	15	4
3	19	8	4	**3**	32	1	8
4	19	14	8	**4**	32	8	0
5	20	1	0	**5**	32	14	4
6	20	7	4	**6**	33	0	8
7	20	13	8	**7**	33	7	0
8	21	0	0	**8**	33	13	4
9	21	6	4	**9**	33	19	8
60	21	12	8	**100**	34	6	0
61	21	19	0	**101**	34	12	4
2	22	5	4	**2**	34	18	8
3	22	11	8	**3**	35	5	0
4	22	18	0	**4**	35	11	4
5	23	4	4	**5**	35	17	8
6	23	10	8	**6**	36	4	0
7	23	17	0	**7**	36	10	4
8	24	3	4	**8**	36	16	8
9	24	9	8	**9**	37	3	0
70	24	16	0	**110**	37	9	4
71	25	2	4	**111**	37	15	8
2	25	8	8	**2**	38	2	0
3	25	15	0	**3**	38	8	4
4	26	1	4	**4**	38	14	8
5	26	7	8	**5**	39	1	0
6	26	14	0	**6**	39	7	4
7	27	1	4	**7**	39	13	8
8	27	6	8	**8**	40	10	0
9	27	13	0	**9**	40	6	4
80	27	19	4	**120**	40	11	8

ALLOWANCES ON LARGE SIZES

On large blocks of a **single** subject (but not on groups made up of a number of originals) allowances will be made as follows :

LINE WORK

	Excess ins. over 120 sq. ins. to 240 sq. ins. Per sq. ins.	Excess ins. beyond 240 sq. ins. Per sq. ins.
Black White	**1d.** less.	Adtnl. **1d.** less
Colour -	**1d.** per colour.	,, **1d.** per colour less
Binders' Zincos	**1d.** less.	Adtnl. **1d.** less

HALF-TONE

Zinc	– **1d.** less.	An adtnl. **1d.** less.
Copper	**2d.** ,,	,, ,, **2d.** ,,
Intaglio	**4d.** ,,	,, ,, **4d.** ,,

COMBINATION HALF-TONE & LINE

	Excess ins. over 120 sq. ins. to 240 sq. ins. Per sq. ins.	Excess ins. beyond 240 sq. ins Per sq. ins.
Ordinary Work	**2d.** less.	Adtnl. **2d.** less
Newspaper	- **2d.** ,,	,, **2d.** ,,

COLOUR WORK

2 Col. Half-tone	**4d.** less.	Adtnl. **4d.** less
2 Col.—1 Tone 1 Line -	- **4d.** ,,	,, **4d.** ,,
3 and 4 Colour Half-tone	- **6d.** ,,	,, **1/-** ,,
Indirect, Object Work and Autochromes	- **8d.** ,,	,, **1/4** ,,

INCIDENTAL CHARGES

1—Excessive Reduction

If the reduction required be greater than ⅙th of the longest measurement of the original, the schedule price shall be increased by 50%. For example : A block 6 inches in length made from an original 6 feet in length. Charge at schedule rate, plus 50%. This rule does not apply to half-tone colour work.

2—Duplicates

Duplicates will be charged at 15% less than the price of the original block if they are ordered at the same time.

3—Long Narrow Plates

The narrow dimension of a block shall be considered as not less than ¼ of the long dimension. For example, a block measuring 16 ins. × 1 ins. would be charged 16 ins. × 4 ins. = 64 ins.

4—Piercing

Inside, not less than **10d.**; Outside, not less than **5d.** each piercing.

5—Anchors

From **1/2** each.

6—Separating Charge

Separating subjects photographed and reproduced together, **6d.** each block, minimum **1/-**. Subjects should be arranged so as to leave a clear ⅜ inch of space between each when reduced, to allow for saw cut and flange.

7—Unmounted Blocks

Will be charged the same price as mounted.

8—Number of Proofs

Proofs to be supplied with half-tone and line blocks not to exceed two good proofs, two rough proofs, and one rough invoice proof. Extra proofs, if ordered at the same time as blocks, will be charged at **3d.** each up to 5 × 4 ins. block size; **4d.** each for square subjects up to 10 × 8 ins. and vignetted subjects **5d.** each. Above 10 × 8 ins. up to 15 × 12 ins. a charge of **7d.** each for square and **9d.** each for vignetted. Larger sizes at higher rates. Extra rough proofs on thin paper half price of square block proofs.

The prices quoted for colour blocks include four good proofs and one rough invoice proof, in addition to one set of progressive proofs.

Extra proofs if ordered at same time as blocks, will be charged at **5d.** each up to 10 × 8 ins. block size; above 10 × 8 ins., **9d.** per proof, up to 25 proofs. This applies to two, three, and four colour work only.

Extra sets of progressive proofs, if ordered at the same time as blocks, **3/3** each up to 10 × 8 ins. block size, and **5/-** for larger sizes.

INCIDENTAL CHARGES—(*continued*)

9—Proofing Single Blocks in Colour (other than black)

From a single block, i.e. without register, charge not less than **3/10** per colour for half-tone, and **2/6** for line.

10—Proofing Colour Blocks

If colour blocks are sent for proofing in colours, i.e., supplying new set of colour guides and six proofs, a charge will be made of **23/-** per set of three colours for blocks up to 8 × 5 ins.; **33/-** for blocks up to 10 × 8 ins.; and **44/-** for blocks up to 16 × 12 ins.; **110/-** for any blocks above this size. This latter charge is necessitated through having to proof on cylinder machines. For two colour deduct one-third, and for four colour add one-third to these prices.

11—Special Ruling

Double ruling on a tone block will be charged from **1/6** extra, Treble Ruling from **4/-** extra, and the measurement of the block will be taken from the extreme edge of the printing surface.

12—Photography

Prices will be quoted on application, including making negative, printing, staging, grouping, etc., also for autochrome. Objects necessitating isochromatic or filter negatives involve an extra charge. Where a number of subjects have to be photographed together on one plate, the charge for staging will be according to the time taken.

13—Cutting Out or Etching Lettering White

An extra charge for cutting or etching white letters will be made for half-tone and colour work, according to time taken.

14—Reversing

Reversing black to white, or vice versa, 2d. per square inch; minimum, **2/4**. Reversing left to right, or vice versa, a fixed charge of **2/-** any size.

15—Stripping and Overprinting

An additional charge of 3½d. per square inch above ordinary rates, for line and coarse half-tone, not exceeding 85 screen, with a minimum of **4/1** for each stripping or overprinting, including negative. Finer screen than 85, **5d.** per square inch; minimum, **5/10**.

16—Tint Blocks

Blocks of plain square zinc for printing flat tints will be charged at **2d.** per square inch for the first 60 inches; minimum, **3/6**. Excess inches beyond sixty, **1d.** per square inch. If cut out or cut to special shape, not less than 100% extra; minimum, **7/-**. If proved in colour, an extra charge will be made as per clause 9.

17—Blue Prints

Ferro prussiate or other cheap photo prints ordered by customer to be taken from process negatives for the purpose of making up copy will be charged for according to time taken in production and delivery. Minimum charge, **6d.** per print.

18—Measurements and Fractional Charges

(*a*) In taking the measurements of both the long and short way of blocks, ⅛ ins. and above will be reckoned at ¼ ins. Less than ⅛ ins. will be disregarded

For example :

5⅝ × 3⅜ would be taken as 5¾ × 3½
5$\frac{1}{32}$ × 3$\frac{1}{16}$,, ,, ,, 5 × 3

(*b*) In calculating the total, fractions of an inch less than half an inch will be disregarded, and fractions of an inch equal to half an inch or more will be charged as one inch.

For example :

5¾ × 3½ equals 20⅛ ins., and would be taken as 20 ins.
6¼ × 4¼ equals 26$\frac{9}{16}$ ins., and would be taken as 27 ins.

(*c*) In extending items on invoices, fractions of **1d.** less than ½d. will be disregarded. Fractions of a **1d.** equal to ½d. or more will be charged as **1d.** Colour Blocks will be charged the full size of the largest block, except in the case of Line Work as provided for on page 46.

Blocks of irregular shape or which contain large blank spaces will be measured on the basis of the square or oblong that contains the whole of the work. Size means scale, i.e. "half size" means reducing from 6 ins. wide to 3 ins. wide.

INCIDENTAL CHARGES—(*continued*)

19—Loss or Damage of Originals

The Liability of the Engraver in the event of any default shall be confined to articles spoilt or damaged and shall in no circumstances include or extend to consequential loss or damage whatsoever and no responsibility for damage will be acknowledged unless claimed within fourteen days of the return of articles to the customer or after notification that they are ready for delivery to him.

20—Insurance

Contracts and deliveries may be suspended in the event of any strike, lock-out, trade dispute, fire, tempest, breakdown, accident, riot, theft, crime, civil disturbance, war, or other occurrence preventing or retarding the work of deliveries, and no responsibility shall attach for any delay, default, loss, or damage due to any of the above causes or for any damage in transit or at the works of the Engravers, or to any other cause beyond the control of the Process Engravers, whether in respect of contract and deliveries or the safe custody of blocks and articles deposited with the Engravers. If the customer desires to be protected against such risks, or any of them, he shall so request the Engravers to be protected accordingly and shall pay the premium payable on any policy to be effected at his request.

21—Storage of Blocks

Engravers shall in no case be liable for any loss or damage through non-delivery or any other cause in respect to blocks left in their possession for a longer period than six months unless the customer has given written instructions requiring such blocks to be retained and has paid a storage charge for the period subsequent to the six months including any charge for insurance if so required by the customer under the preceding conditions.

This space is left blank so that alterations and amendments to the Schedule can be noted.

GLOSSARY OF WORDS AND TERMS USED IN CONNECTION WITH PROCESS-ENGRAVING

(This glossary is a selection of terms in common use between the customer and the process-engraver, and is not intended to be a complete glossary of all terms applying to the craft.)

Aerograph or Air Brush.—A mechanical instrument for spraying paint evenly on photographs or drawings.

Anchoring.—A method of mounting plates on wood mounts when no flanges are available.

Autochrome.—A name applied to a specially prepared photographic plate for photographing objects in natural colours.

Backing Up.—The process of backing a printing plate to bring it to electrotype or stereotype height.

Bearers.—Excess metal around or within the printing area of a plate.

Bevel.—That portion of the plate on the outside edges, below the printing surface, by which the plate is attached to its mount.

Black and White.—Term applied to plates suitable for printing in one colour.

Bleed.—Area of plate or print extending beyond edge to be trimmed, to allow for trimming.

Block.—The generic term applied to any letterpress printing plate.

Border.—Finishing line or design on the printing edge of plate.

Chromium Finish.—*See* Sunchrome, page 107.

Colour Gravure.—*See* Rotary Photogravure, page 101.

Colour Guides.—Graphic instructions for colour rendering or placement.

Colour Proofs.—Proofs of colour plates combined and registered.

Colour Separation.—Mainly applicable to colour line work; refers to the work by the artist in drawing or painting on the plate to regulate the colour values of each plate. Also used in reference to the action of the filters used in colour negative making.

Colour Work.—General term applied to colour plates to print in two or more colours, such as : line and tint work; two-colour half-tone; three-colour half-tone; four-colour half-tone; autochrome work; gallery work; object work; Photogravure in colour; "Suntone" in colour.

Composite Block.—A plate that is made up from two or more originals.

Combination Half-tone and Line Work.—Half-tone and line work combined and etched on one plate.

Copy.—A term strictly applicable to manuscript, etc., for setting of letterpress; sometimes erroneously used instead of "original." *See* Original.

Day's Mediums.—A method for laying tints (composed of dots, lines, and other textures) on negatives, metal prints, or copies. *See* article, page 13.

Duplex Half-tone.—A plate engraved from a monochrome original by two half-tone negatives, but without colour separation, the second plate acting merely as a tint to reinforce the key, producing a double-tone effect.

Duplicate Blocks—Blocks made from the same negative as the original plate, ordered at the same time. Etched and finished in the same manner.

Electrotype.—A plate made by electrolytically depositing copper on a mould of wax or lead taken from the original plate or type. *See* article, page 109.

Embossing Plate.—A plate cut or etched below its surface into which the paper is forced for the purpose of raising the image of the printed surface.

Engrave.—To execute hand work on a plate in addition to fine etching.

Fine Line Work.—Reproduction of fine maps, fine script, fine mechanical drawings, fine pen and ink work, reproductions of steel and copper engravings.

Finish.—Term used to designate treatment of outer edges of block, such as squared up, circle or ovals, vignetted or cut-out, deep-etched, various line or tone borders; hairline, raw edge, daylight rule, etc. *See* examples, pages 6-9.

Flat Tint Plate.—A solid piece of metal cut to the required shape.

Flat Proof.—Proof made from block without any make-ready of any kind.

Hairline.—The finest line, either black or white, which can be etched or engraved on a relief plate.

Hairline Finish.—*See* Finish.

Half Line.—A plate made from a pen and ink drawing through a half-line screen for the purpose of producing a lighter effect than the original.

Half-tone Plate (Block).—The method of making a relief plate by a photo-mechanical etching process employing the principle of the half-tone screen whereby all gradations of tone values in the copy are reproduced in the plate by variations in the formation and size of minute dots of geometrical arrangement obtained primarily in the negative by the interposition of a cross ruled screen. *See* article, page 4.

Half-tone.—Squared up, circle or oval, vignetted, cut-out, deep-etched. *See* Finish and examples, pages 6-9.

Half-tone Screen.—A grating of opaque lines on glass, crossing at right angles, producing transparent square apertures between intersections, which split the image up into the dots so distinctive of half-tone process. *See* article, page 24.

INDIRECT WORK.—Work which cannot be made from screen negative direct, but for which a continuous tone negative and positive must be made before the screen negative can be produced.

INSERTING.—*See* Stripping.

INTAGLIO PLATE (BLOCK).—A plate in which the image is countersunk or depressed. Incised lines instead of raised or in relief as in a half-tone plate.

ISOCHROMATIC.—A photographic plate which has been rendered sensitive to green and yellow rays in addition to its ordinary sensitiveness to blue and violet. Isochromatic plates are, however, not sensitive to red, and although the name implies that they are generally sensitive to all colours, they are, in fact, more or less equally sensitive to violet, blue, green, and yellow.

KEY DRAWING.—An original which includes all the outlines and also guide lines used for separation of colours.

KEY PLATE.—The plate of maximum detail in a colour set, to which other colours are registered.

LINE DRAWING OR ORIGINAL.—An original suitable for reproduction by line process, that is, a drawing composed of lines or dots as distinguished from one composed of tones.

LINE FINISH.—*See* Finish.

LINE PLATE (BLOCK).—A relief block reproduced direct from a black and white original without intermediate tones other than tints. *See* article page 2.

LUMIERE.—An autochrome plate made by Lumiere Frères for direct colour photography.

MATS.—Abbreviation for matrices, papier mâché or composition moulds from relief plates or formes.

MINIMUM.—Size of plate, below which the charge and cost of manufacture remains fixed.

MONOCHROME.—One colour.

MOUNT.—The wood or metal base on which a plate is fastened to bring it type high.

MOUNTING FLUSH.—Trimming plate flush on top, bottom, sides, or all round, so that printing surface is flush with the plate.

ORIGINAL.—Term applied to copy.

OVERLAYS, CUT OR MECHANICAL.—A method of increasing pressure on solids and darker tones of the plate, and decreasing the same on lighter tones and high lights.

OVERPRINT.—A print from a second negative superimposed in a definite manner upon the print of the first negative.

PANCHROMATIC.—A photographic plate fairly sensitive to all visible colours of the spectrum. Like an isochromatic plate, however, it is still sensitive to some of the near ultra-violet rays, to cut out which the use of a yellow filter is necessary in all cases when full colour correction is required.

PHOTOGRAVURE.—An intaglio process of engraving as distinct from the relief engraving of half-tone. *See* article, page 101.

PIERCING.—An enclosed aperture cut through the mounted block.

PLATE.—*See* Block.

PROGRESSIVE PROOFS—*See* Colour Guides.

REGISTER.—Correct relative position of two or more colours when printed from colour plates.

RETOUCHING.—Corrective treatment of negative, positive, or copy by means of brush, pencil, pen, air brush, or other means.

REVERSING.—Altering the black in the original to white in the reproduction and vice versa. Also, can refer to the changing of the left-hand side of the original to the right-hand side of the reproduction.

SCREEN.—*See* Half-tone Screen, page 24.

SILHOUETTE.—A half-tone from which screen surrounding any part of image has been cut away or etched away.

SPOTTING.—Removing black or white spots from original on half-tone plate.

STEPPING.—The cutting of a mounted block for the inserting of type, but not enclosed as a piercing.

STEREOTYPE.—A plate made by casting metal into a matrix, used generally for newspaper and cheap forms of printing. *See* article, page 109.

STIPPLE.—To engrave by means of dots instead of lines. In process-engraving generally used in a collective sense to designate any arrangement of dots of regular or irregular formation.

STRIPPING.—Removing negative or positive film preparatory to turning and inserting.

SUNCHROME.—The Sun Engraving Co.'s special process for electrolytically depositing chromium on printing plates. *See* article, page 107.

SUNTONE.—The name applied to the special Sun Engraving Co.'s process for engraving a plate, either half-tone or full colour, which will print on rough, hard papers, antique or featherweight stocks. *See* article, page 98.

TINT BLOCK.—A solid plate to be used in printing a flat colour.

TINT-LAYING.—The operation of transferring Day's Mediums or other mechanical tints to plates, drawings, etc. *See* article, page 13.

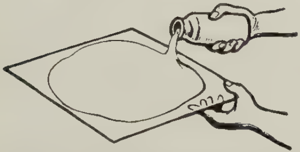
TOOLING.—Engraving white lines with a graver.

TYPE HIGH.—A plate is said to be "type-high" when it is mounted on wood or metal to the proper height to be used on a printing press.

HOW A LINE BLOCK IS MADE

Washing the Glass.

The glass is cleaned with lye and washed carefully.

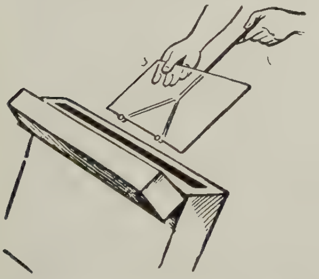


Coating Glass with Albumen.

The glass is then coated with white of egg (albumen) dissolved in water and allowed to dry.

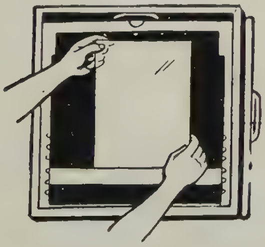
Coating with Collodion.

The glass is next coated with collodion, which is allowed to set until it is partly dry.



Dipping Plate in Silver Bath.

The glass is then dipped in a light-proof tank containing nitrate of silver and allowed to remain about five minutes, during which time the silver nitrate deposits on collodion surface of glass—making the surface sensitive to light.



Placing Wet Plate in Plate Holder.

The sensitized plate (or wet plate) is now placed in the plate holder. (This operation must be done in the dark room).

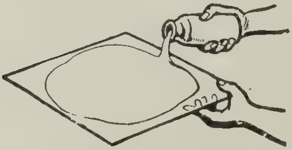
The plate holder is attached to the camera and the slide withdrawn—the lens uncapped and the exposure is made on the wet plate.

Photographing the Copy.

The wet plate is next developed and fixed in the dark room. It is now a negative.

Developing the Plate.

The negative is first coated with rubber cement and after it is dry—with a coating of collodion.



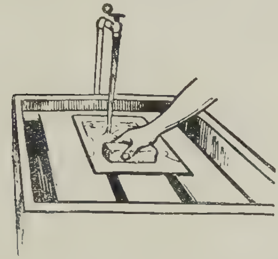
Coating with Rubber.

The negative is next cut and then soaked in acetic acid and then stripped off the glass.

Stripping the Negative Film.

The negative film is now placed on a sheet of ¼ in. plate glass with a number of other negatives and the film is turned over so when finished the picture will not read backwards.

Squeegeeing — Turned Negative to Plate Glass.

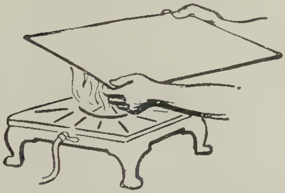


Scrubbing Zinc Plate with Powdered Pumice.

The polished plate is rubbed with powdered pumice and water to obtain a matt surface for coating to adhere to.

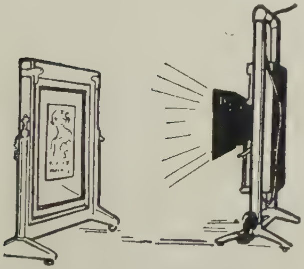
Coating with Sensitized Solution.

The zinc plate is coated with a solution of white of egg (albumen) and water and bichromate of ammonia.



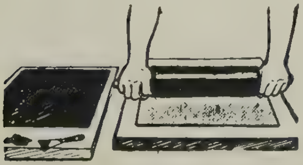
Drying Sensitized Coating on Zinc Plate.

The coated plate is then dried over a gas stove in a dark room.



Printing Through Negative on Zinc Plate.

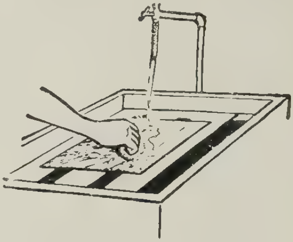
The negative is now placed in a printing frame and the sensitized side of zinc plate placed in close contact with negative and exposed to powerful electric light for about four minutes.



Rolling Ink over Zinc Print.

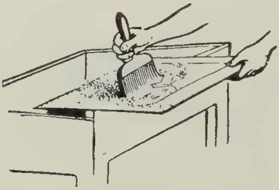
The zinc plate or " print " is then rolled with a leather roller and specially prepared ink.

The zinc plate is next placed under a faucet of running water and gently rubbed over with a tuft of cotton. Wherever the negative was transparent, the light made the coating on the zinc insoluble and this remains on the zinc as the picture. The rest of the coating washes off, leaving the bare zinc exposed.

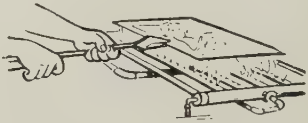


Removing Ink and Coating from Unexposed Parts.

The zinc print is now slightly warmed, so the ink becomes " tacky " and then it is dusted over with Dragon's Blood, which only sticks to the inked portions of the plate. The Dragon's Blood coating on the ink is then heated over a gas furnace until it melts.

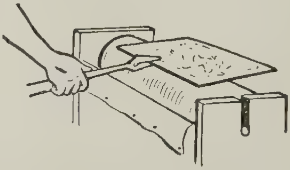


Powdering Zinc Plate with Dragon's Blood.



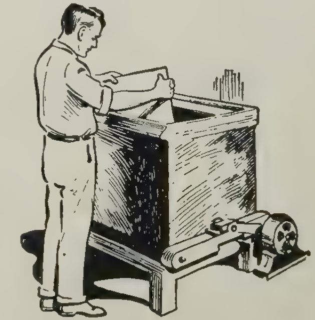
Heating Zinc Plate.

The heated plate is then quickly cooled so that the Dragon's Blood forms an acid-proof coating over all the lines in the picture.

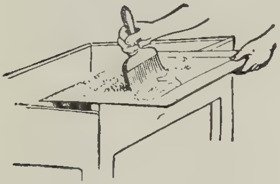


Cooling Zinc Plate.

The zinc plate is next placed in an etching machine—containing nitric acid and water, which dashes acid over surface of plate and etches away the unprotected portions of the zinc plate. The first etching or bite only requires about thirty seconds.

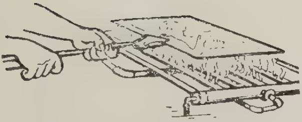


Zinc Etching Machine.



Powdering Zinc Plate with Dragon's Blood.

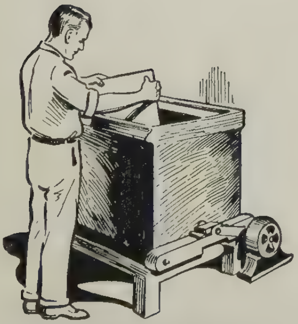
The zinc plate, after the first bite, is dusted over with Dragon's Blood again and the surplus powder carefully brushed off the plate, special care being taken to brush the Dragon's Blood close up against the etched side of the line in one direction.



Heating Zinc Plate.

Cooling Zinc Plate.

The plate is heated over a gas furnace until the Dragon's Blood melts and covers the top and side of the line. The operation is repeated three more times until all lines have had Dragon's Blood coating from all four sides. The zinc plate is now put back in the etching machine for the second bite, which lasts about 1½ minutes, after which each side is again dusted with Dragon's Blood and heated and cooled and put back in etching machine for third bite. This lasts about three minutes. It is then again dusted with Dragon's Blood, heated and cooled four times more, and put back in etching machine for the last bite, which requires about eight minutes. After this operation the acid-proof top is removed with hot lye.



Zinc Etching Machine.

The etched zinc plate must now have the more open-etched spaces routed so they will not catch the ink from the press rollers and print.

Routing Machine.

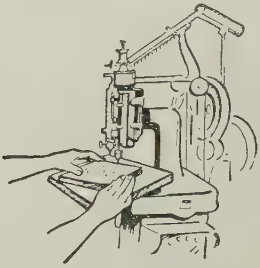
The zinc etching must now be hand tooled or trimmed to assure perfection.

Hand Tooling the Plate.

A proof is now pulled from the plate and carefully compared with the original copy.

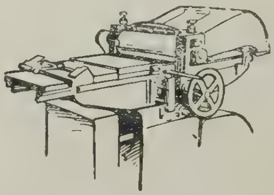
Pulling the Proof.

The zinc etching is next nailed on a wood mount by a nailing machine.



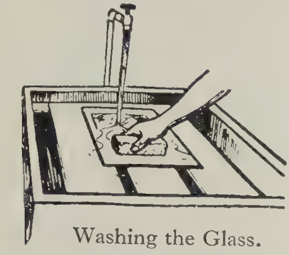
Mounting the Plate.

The mounted plate is now placed on a planing machine and the back of the plate is planed off until it is exactly type high. It is now ready for the printer.



Planing the Block type-high

HOW A HALF-TONE IS MADE

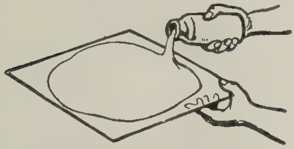


Washing the Glass.

The glass is cleaned with lye and washed carefully.

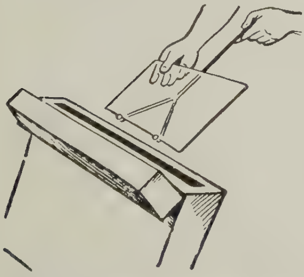
Coating Glass with Albumen.

The glass is then coated with white of egg (albumen) dissolved in water and allowed to dry.



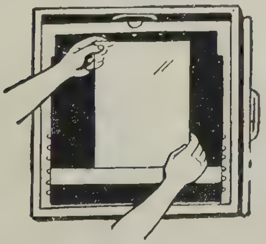
Coating with Collodion.

The glass is next coated with collodion, which is allowed to set until it is partly dry.



Dipping Plate in Silver Bath.

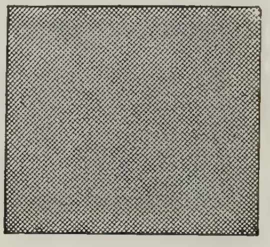
The glass is then dipped in a light-proof tank containing nitrate of silver and allowed to remain about five minutes, during which time the silver nitrate deposits on collodion surface of glass—making the surface sensitive to light.

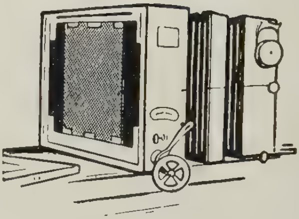


Placing Wet Plate in Plate Holder.

The sensitized plate (or wet plate) is now placed in the plate holder. (This operation must be done in the dark room).

Half-tone screen—made of two pieces of plate glass, each glass plate has opaque (parallel) lines engraved on it diagonally and these two glass plates are cemented together so that the opaque lines cross each other at right angles forming a mesh or screen. The number of opaque lines ruled to the inch determine the screen. Those in general use are 45—55—65—85—100—110—120—133—150—175.



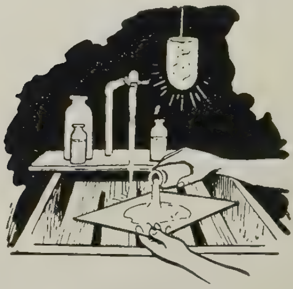


Half-tone Screen Placed in Camera.

The half-tone screen is placed in back of camera on an adjustable frame which allows the screen to be moved very close to surface of wet plate in plate holder and equally distant from it at all points. When the lens is uncapped, the light in the camera passes through the openings in the screen before reaching the wet plate and this causes the picture to be broken into dots.

Photographing the Copy.

The wet plate is next developed and fixed in the dark room. It is now a negative.



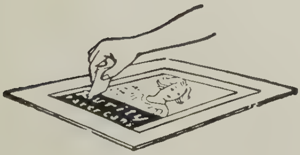
Developing the Plate.

Coating with Rubber.

The negative is first coated with rubber cement and after it is dry—with a coating of collodion.

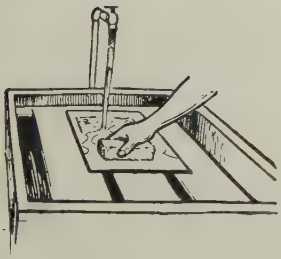
Stripping the Negative Film.

The negative is next cut and then soaked in acetic acid and then stripped off the glass.



Squeegeeing — Turned Negative to Plate Glass.

The negative film is now placed on a sheet of $\frac{1}{4}$ in. plate glass with a number of other negatives, and the film is turned over so when finished the picture will not read backwards.

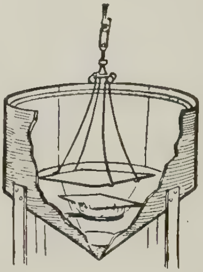


Scrubbing Copper Plate with Powdered Pumice.

The copper plate is rubbed with powdered pumice and water to obtain a matt surface for coating to adhere to.

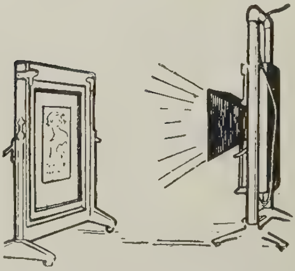
Coating Copper with Sensitize Solution.

The copper plate is coated with a solution of fish glue and bichromate of ammonia and dried in a dark room by whirling it in a tank, face down over a gas stove.



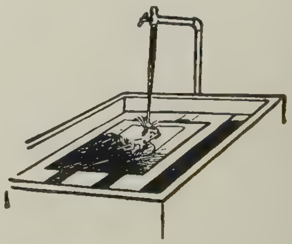
Whirling and Drying the Coated Copper Plate.

The negative is now placed in a printing frame and the sensitized side of copper plate placed in close contact with negative and exposed to powerful electric light for about four minutes.

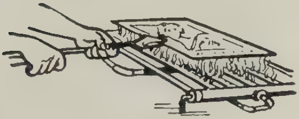


Printing Through Negative on Copper Plate.

The copper plate or print is again taken into the dark room and placed under a faucet of running water. This dissolves the coating between the dots, which is the part of coating that was not exposed to the light. The plate is then soaked in violet aniline dye, which colours each dot and makes the picture show clearly on the metal.

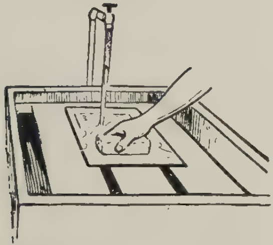


Washing the Coating from Unexposed Parts of Copper Print.



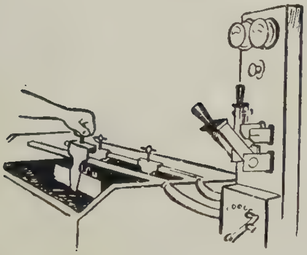
Burning in Copper Plate.

The print is next " burnt in " or heated over a gas stove and then cooled slowly. This turns the coating into a hard acid-proof enamel.



Cleaning the Half-tone Plate.

The " burnt-in " plate is now cleaned carefully with a mixture of acetic acid and salt to remove all traces of coating from between the dots.



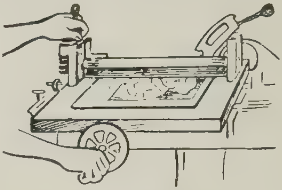
Electric Etching Machine.

The plate is next placed in an electric etching machine, which dissolves the exposed copper between each dot. This is a new method which gives greater depth and better printing and electrotyping quality.

Re-etching the Plate.

The half-tone plate is next re-etched by carefully painting over the dark portions of the picture with an acid-proof coating and then etching the rest of the dots again so that those in the lighter parts of the picture become smaller with more white space between them, which adds greatly to the tone values of the picture.

The half-tone plate is next bevelled for nailing and the black border line machined on it.

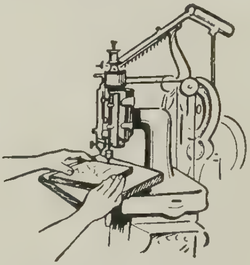


Bevelling the Plate.

The half-tone plate must next be hand tooled to assure perfection.

Hand Tooling the Plate.

The half-tone plate is next nailed on a wood mount by a nailing machine.

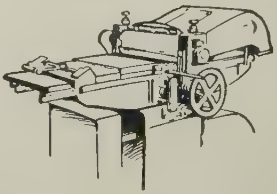


Mounting the Plate.

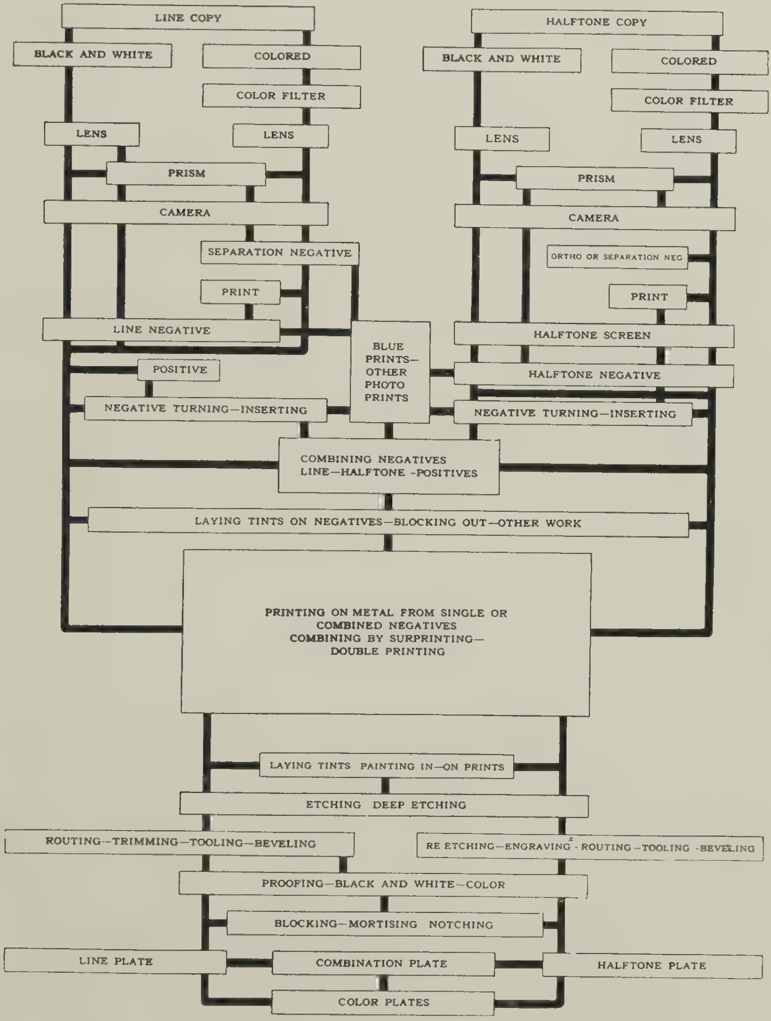
A proof is now pulled from the plate and carefully compared with the original copy.

Pulling the Proof.

The blocked plate is now placed on a planing machine and the back of the block is planed off until it is exactly type high. It is now ready for the printer.



Planing the Block Type-high.


LINE COPY
BLACK AND WHITE
COLORED
COLOR FILTER
LENS
LENS
PRISM
CAMERA
SEPARATION NEGATIVE
PRINT
LINE NEGATIVE
POSITIVE
NEGATIVE TURNING—INSERTING
HALFTONE COPY
BLACK AND WHITE
COLORED
COLOR FILTER
LENS
LENS
PRISM
CAMERA
ORTHO OR SEPARATION NEG
PRINT
HALFTONE SCREEN
HALFTONE NEGATIVE
NEGATIVE TURNING—INSERTING
BLUE PRINTS—OTHER PHOTO PRINTS
COMBINING NEGATIVES LINE—HALFTONE -POSITIVES
LAYING TINTS ON NEGATIVES—BLOCKING OUT—OTHER WORK
PRINTING ON METAL FROM SINGLE OR COMBINED NEGATIVES COMBINING BY SURPRINTING—DOUBLE PRINTING
LAYING TINTS PAINTING IN—ON PRINTS
ETCHING DEEP ETCHING
ROUTING—TRIMMING—TOOLING—BEVELING
RE ETCHING—ENGRAVING - ROUTING - TOOLING -BEVELING
PROOFING—BLACK AND WHITE—COLOR
BLOCKING—MORTISING NOTCHING
LINE PLATE
COMBINATION PLATE
HALFTONE PLATE
COLOR PLATES

This chart shows the progressive stages in the production of photo-engraving. It illustrates the sub-divisions of the process, and conveys to the mind how complicated it is.

THE SUNTONE PROCESS

THERE has been a long-felt want by the printer and the user of illustrated letterpress printing for a mechanically engraved plate that would print on non-surfaced papers. This want has been supplied by the perfecting and introduction of the Suntone process.

A Suntone plate, either half-tone or full colour, will print as well on a rough. hard paper as on an antique laid or featherweight stock and give beautiful results. By printing from a Suntone plate the letterpress printer will be able to produce monotone and colour work superior to offset work, and at a more economical cost.

Suntone requires a greater pressure than ordinary blocks on most papers. The pressure necessary for impression depends upon the surface of the paper to be used. If a very hard, rough paper is being used, full pressure is required, but if the work is being printed on an ordinary antique or featherweight, while considerable pressure is necessary, the amount required is not greatly in excess of that required for ordinary half-tone printing. Any cylinder machine or art platen will print Suntone.

The chief point in the printing of Suntone is that you must have a really good overlay to bring the plate into contact with the paper. A mechanical chalk overlay is recommended. If the overlay is correctly made and the pressure applied, both sides of the paper can be successfully printed. The Sun Engraving Company will be pleased to supply overlays for each Suntone plate if required.

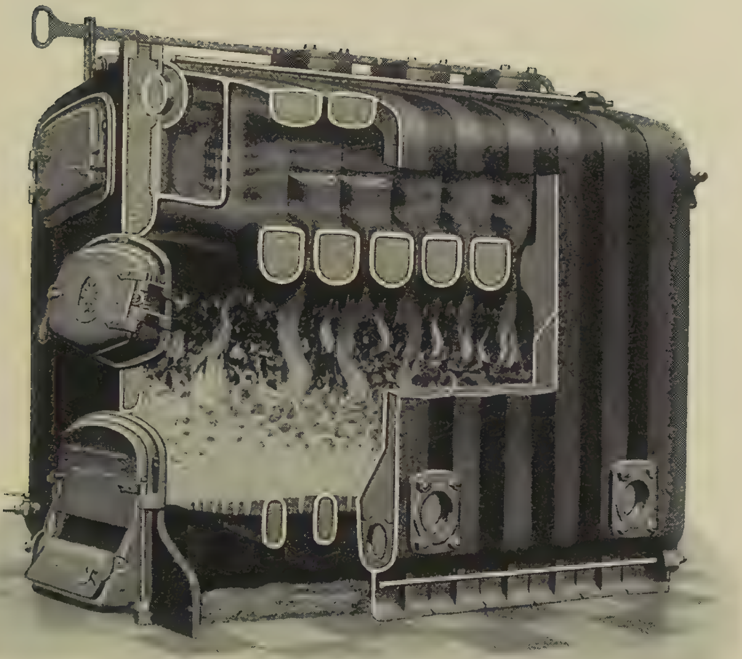
The life of a Suntone plate is practically the same as an ordinary half-tone block, so long as the impression on the machine is satisfactory. Any colour of ink can be used for printing Suntone plates, but it should be seen that the inks are full in body and used as stiff as the machine rolling power will allow.

SUNTONE

	Per sq. in.			Minimum		
	£	s.	d.	£	s.	d.
Squared up - - - - - - -	0	1	2	0	16	4
Circles/and Ovals - - - - - -	0	1	3	0	17	6
Vignettes and/or Cut-Outs - - -	0	1	6	1	1	0
Deep etched, i.e. pencil work, etc. - -	0	2	0	1	8	0

COMBINATION SUNTONE-AND-LINE-WORK

	Per sq. in.			Minimum		
	£	s.	d.	£	s.	d.
Etched on one plate - - - - - -	0	2	6	1	15	0



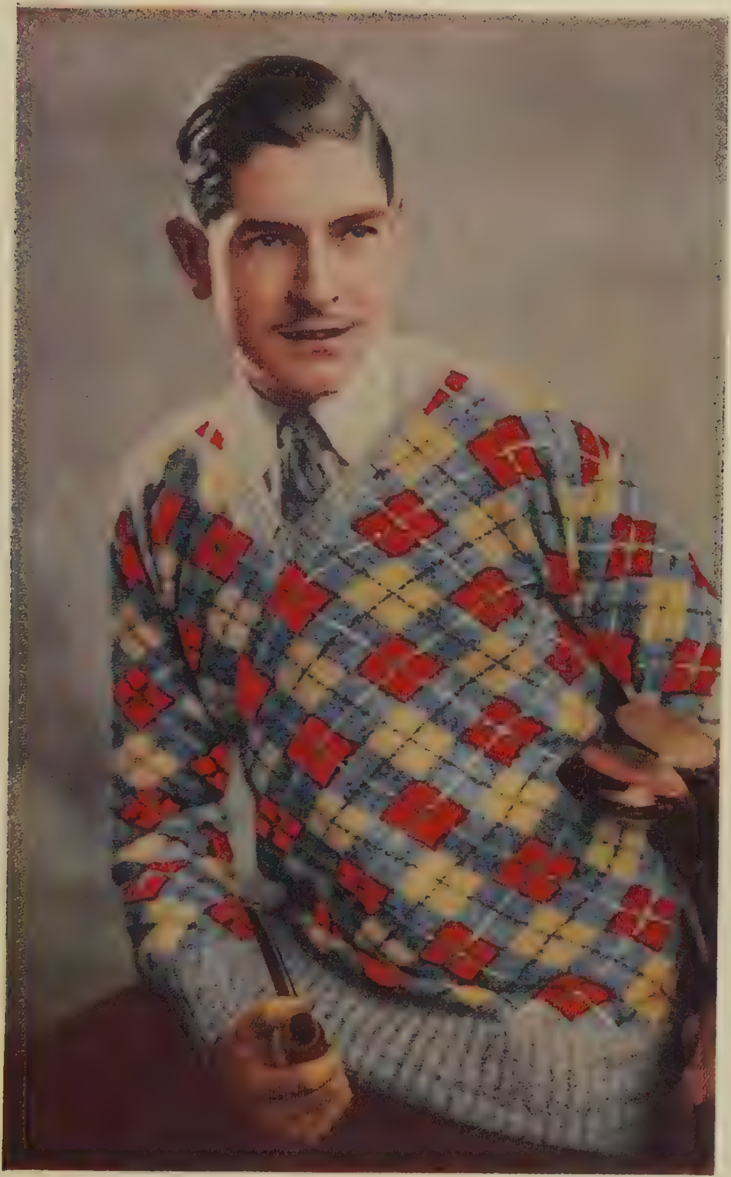
[Reproduced by permission of the National Radiator Co., Ltd.

A "Suntone" Catalogue Illustration

Reproduced from a retouched photograph

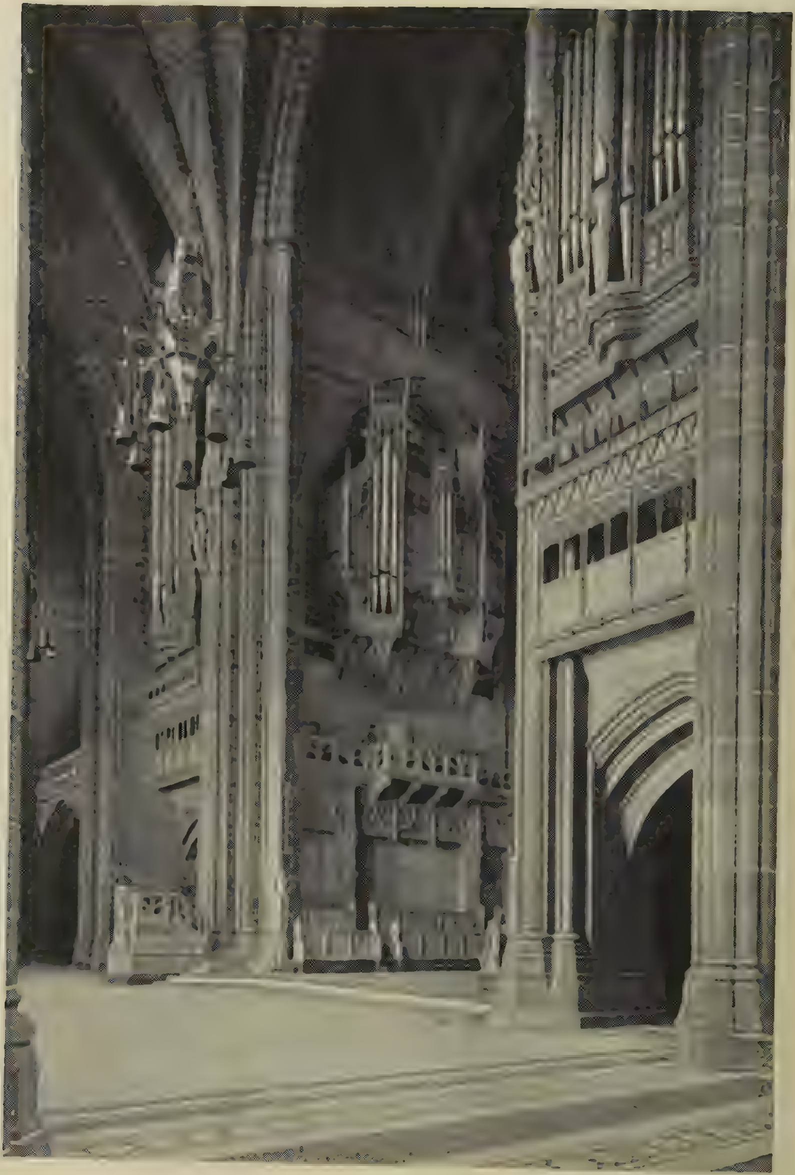
An Illustration of Carpets

"Suntone" colour plates engraved direct from the natural objects



A Catalogue Illustration of Men's Wear

"Suntone" colour plates engraved from a plain photograph



[Photograph by Stewart Bale

Liverpool Cathedral

A "Suntone" plate engraved from a photographic original

SUNTONE TWO-COLOUR

Description	Minimum			Per sq. in. beyond 30 sq. in.		
	£	s.	d.	£	s.	d.
From either monochrome or colour original	5	1	3	0	2	10
Cut-away backgrounds or vignetted - -	5	18	2	0	3	1

SUNTONE THREE-COLOUR

Description	Minimum			Per sq. in. beyond 30 sq. in.		
	£	s.	d.	£	s.	d.
From either monochrome or colour original	9	5	8	0	4	6
Cut-away backgrounds or vignetted - -	10	19	5	0	5	4

SUNTONE FOUR-COLOUR

Description	Minimum			Per sq. in beyond 30 sq. in		
	£	s.	d.	£	s.	d.
From either monochrome or colour original	11	7	10	0	5	4
Cut-away backgrounds or vignetted - -	12	13	2	0	6	2

SUNTONE AUTOCHROME, OBJECT, GALLERY AND INDIRECT WORK

Either Three or Four Colour

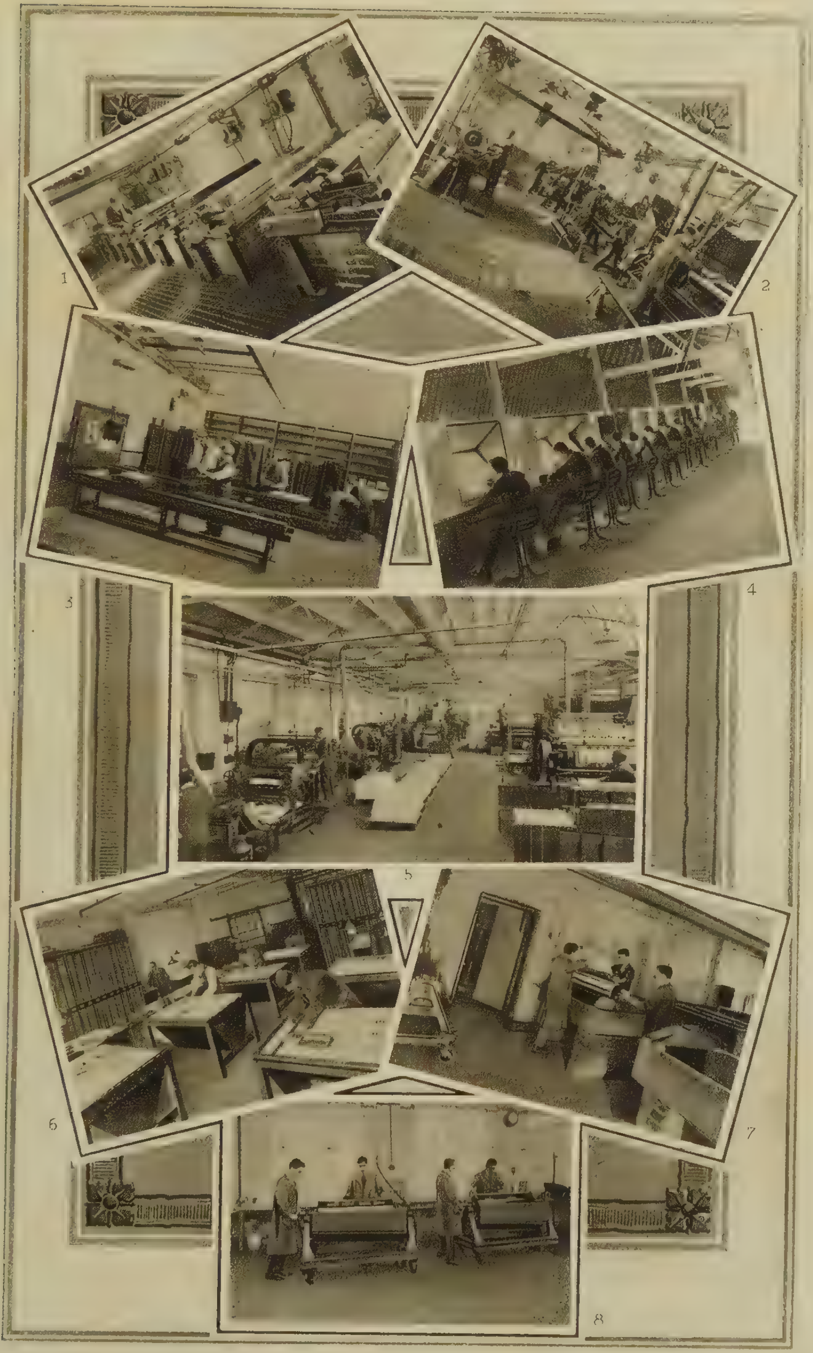
Description	Minimum			Per sq. in. beyond 30 sq. in.			
				Single Subjects		Grouped Subjects	
	£	s.	d.	s.	d.	s.	d.
Squared, circles, or ovals - - -	12	13	0	6	0	8	6
Cut-away backgrounds or vignetted -	13	10	0	7	0	9	0

CARPETS AND LINOLEUMS

Either Three or Four Colour

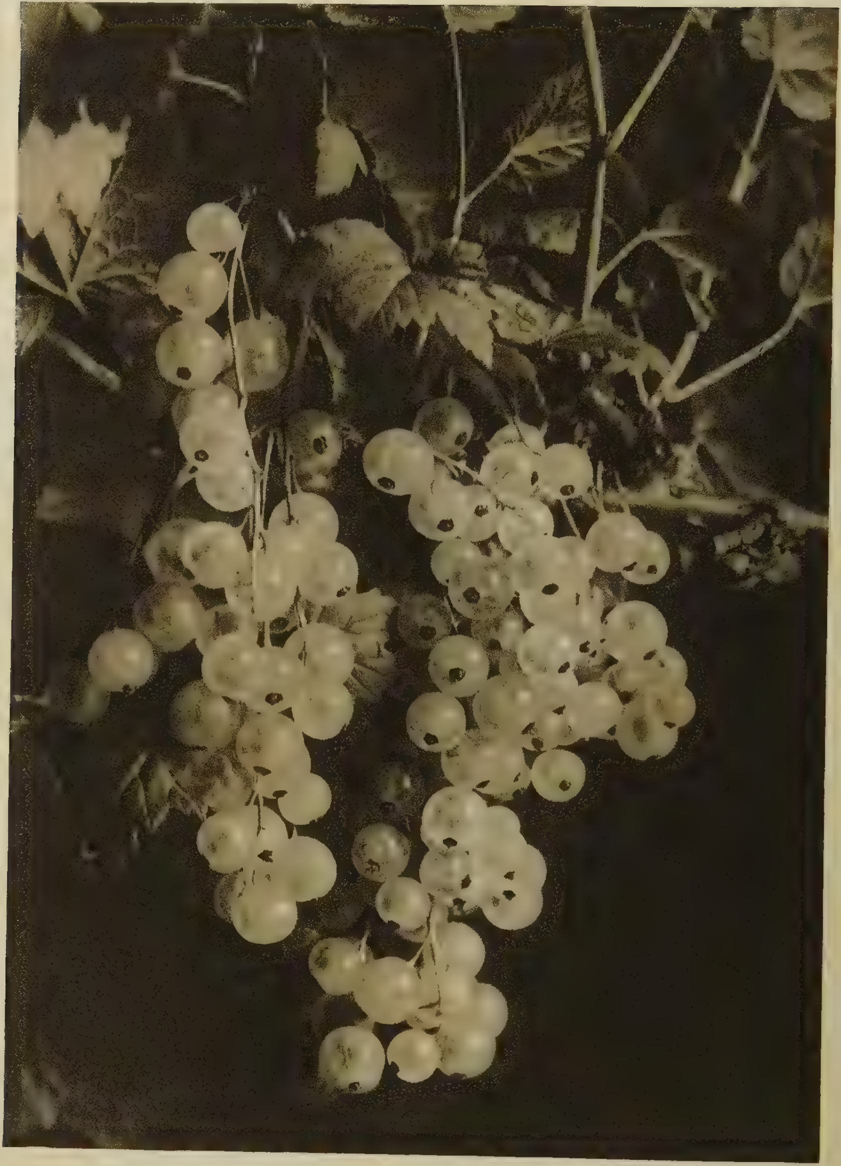
Description	Minimum			Per sq. in. beyond 40 in.			
				Single Subjects		Grouped Subjects	
	£	s.	d.	s.	d.	s.	d.
Carpets and Rugs from Articles - -	19	0	0	8	0	9	6
Carpets and Rugs from Drawings -	17	6	0	7	4	8	6
Linos direct from Articles or from Drawings and Prints up to ⅛th linear reduction - - - - - -	17	6	0	7	4	8	6

This page is left blank for alterations and amendments to Schedule of Suntone prices.



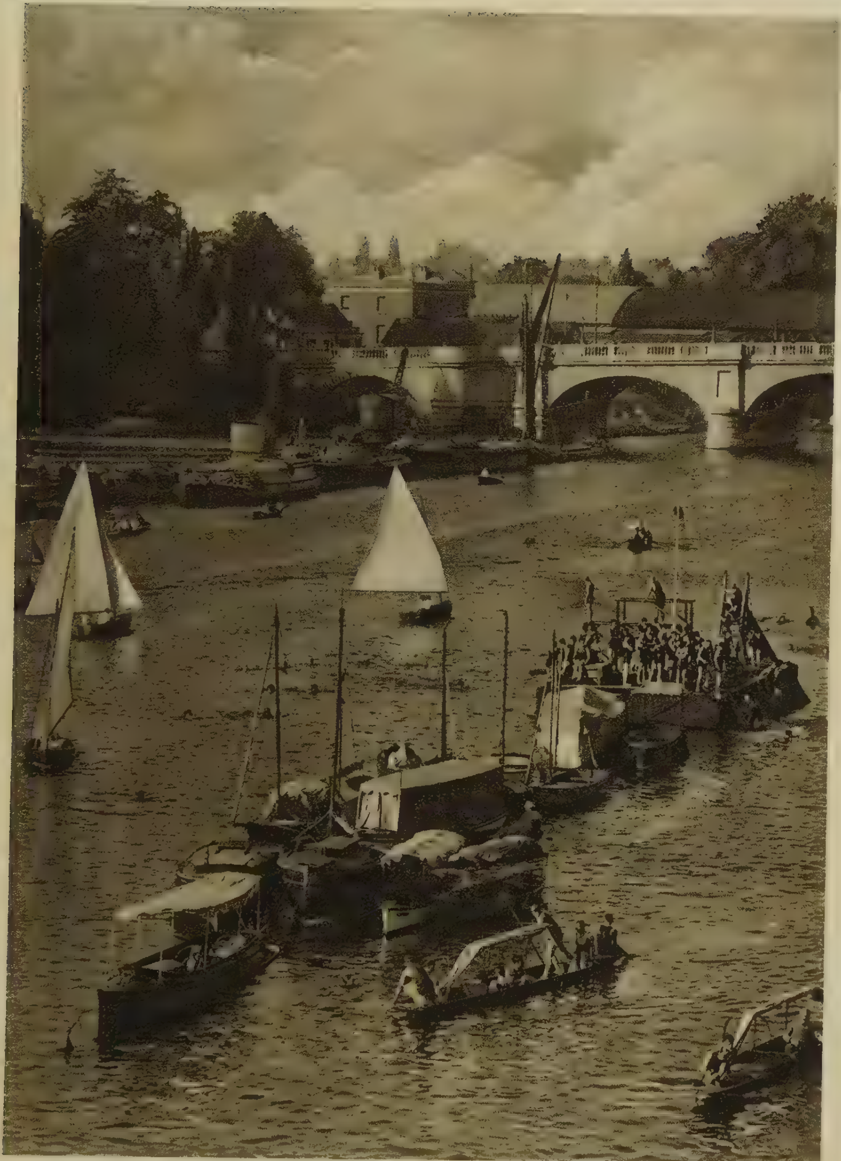
Where Sungravure is Engraved and Printed

1 Depository
2 Polishing
3 Studio
4 Retouching
5 Machine Room
6 Planning
7 Laying Carbon Tissue
8 Etching



An Example of Sungravure

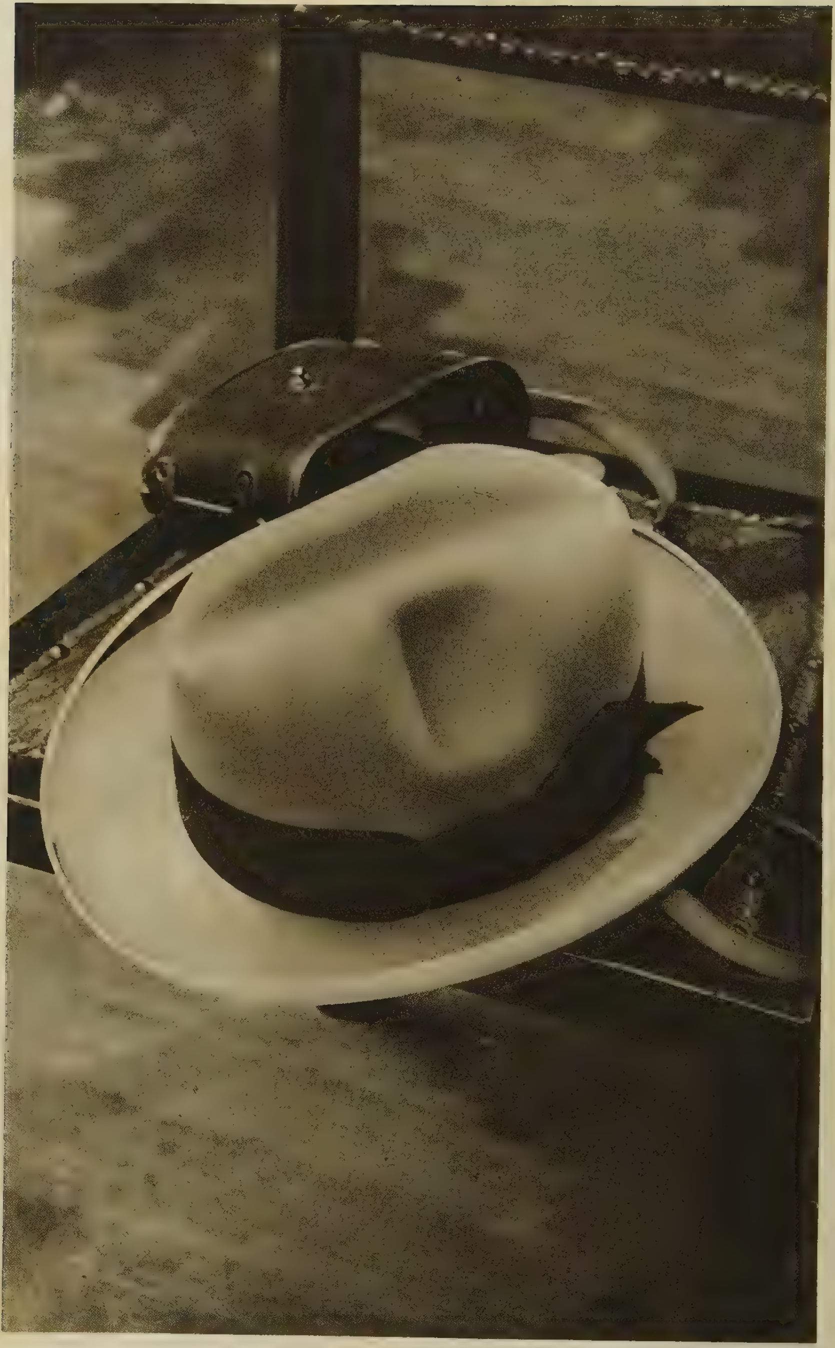
Reproduced direct from the natural object



By the courtesy of The Underground

One of a Series of Twelve Posters

Reproducing photographs by Edgar and Winifred Ward
that were engraved and printed in Sungravure



A Catalogue Study in Sungravure

ROTARY PHOTOGRAVURE

THE great advantage of the rotary photogravure process over other methods of pictorial reproduction lies in its richness and depth of shadow, combined with real photographic effects.

Rotary photogravure differs fundamentally from letterpress half-tone. The printing surface of the latter is in relief and is composed of minute dots which is the distinctive feature of the process. The solids or shadows when viewed under a powerful glass show dots so large that they join each other and will print as a solid mass. The high-lights show a similar number of dots, but are so small as to become isolated.

When impressions are taken from these plates they are rolled and covered with a thin uniform film of ink all over their surface, the image being transferred to paper under pressure, and the reflected light from the paper between the dots complete the optical effect of light and shade.

The intaglio printing surface when magnified will show the whole of it to be composed of minute rectangular cells all of the same size and shape. On looking more closely the cells will reveal considerable variation in their depth. The high-lights will show the surface to be only slightly etched, while the lighter tones to the deepest shadows will show a gradual increasing depth. These cells are subsequently filled with ink, and a thin steel blade which is very flexible scrapes all the superfluous ink from the surface of the cell walls and surrounding margins, leaving a graduated film of ink in the cell-like receptacles. This film of ink is transferred to paper under pressure; while the impression is taken a slight spreading of the ink over the screen divisions takes place, which not only obliterates the screen appearance, but also gives the double-tone effect which is the charm of the photogravure prints. The effect of light and shade is obtained by the varying thickness in the film of ink. This thickness is determined by the depth of the cells.

COPPER CYLINDERS

The copper cylinders on which the photogravure images are etched may either be drawn copper tubes or have bases of steel and cast iron according to size. The steel sleeves and iron cylinders must have a coating of copper deposited on them, which is carried out in large tanks lined with lead. The tank is filled with a solution of copper sulphate and sulphuric acid. Copper anodes are hung on either side in the solution and the cylinder placed between them. The cylinder is made to revolve, while an electric current passes through it during the whole time of deposition. It is interesting to note that a cylinder measuring 40 by 50 inches would take several days to deposit a coating of copper one-eight of an inch in thickness.

These cylinders when taken from the bath are in a very rough state, and it is necessary to turn them on a lathe to make them perfectly round and parallel. They are ground with stones of varying degrees of hardness, and finally polished. A very high finish, free from the most minute scratch, is essential to the successful working of this exacting process. The cylinder is then ready for the image to be transferred and etched.

ORIGINALS

It is often asked, "What kind of original is required for the photogravure process?" This process, however, will produce a result from any original, whether it is a photograph, line, wash, or a coloured one. But to avoid disappointment we would point out that it has its limitations; most processes enjoy this distinction. Naturally, some classes of originals are better suited to give a first-class result.

Good bold wash drawings with plenty of tone make excellent reproductions. Black and white photographs make very good copy, but, where possible, the original negatives should be obtained which will give an infinitely better result.

Avoid using blue in the air-brush work—it is misleading, because it will photograph several shades lighter. Brown originals, although charming, rarely make good reproductions; yellows, browns, and reds are black to an ordinary plate, which means this style of original will photograph very flat. They can, of course, be adapted, but additional costs and retouching work is necessary.

Originals which contain any area of tints or light tint borders should be air-brushed. If these are washed on with an artist's brush, the brush marks may be exaggerated when photographed.

Reproductions of pencil sketches will usually show a slight tint on the ground, which often gives a very pleasing result.

MAKING THE NEGATIVE

There is no screen used in the making of the photogravure negative. The style of negative depends upon the result required. The copy or original is affixed to the copy board of the camera and given a full exposure, the plate is then developed to get the fullest gradation. It will usually be found that spotting and strengthening of the high-lights are necessary, while the tonal values may also require a little separating. All this work is carried out in the retouching room. Subjects which are cut-out, by that we mean designs on a clear white ground, will have the background painted out solid on the negative to ensure freedom from blemishes. Positives are made from the retouched negatives and a great deal of skill and experience is required to produce just the style and character necessary. These positives must represent the original copy in every detail; they should, in fact, be a replica of the subject. It is usually necessary to carry the retouching a stage further on the positives, the shadows may require strengthening due to loss through photography, and a certain amount of matching for correct density. It is not generally understood that sheets which may contain dozens of subjects are all etched together on one cylinder. It will, therefore, be realized that each subject must have the correct ratio of density to produce facsimile results.

Letterpress matter which may be incorporated with the job is printed on a transparent material which is used direct for printing on to the carbon tissue. Great care must be exercised with these impressions to get them uniform in colour and density, as the final result depends so much on the quality of these prints.

PLANNING

Making up or laying out the job is very similar to imposing a forme in the composing room, except in this process a transparent light-table is used instead of the imposing surface. A sheet of paper is ruled up to the size of the job showing the margins and positions, this sheet is placed on the light-table. A thick plate glass is laid on top. The positives and letterpress matter are then placed in position shown by the ruled sheet, the light beneath the table making everything visible. When the work is correctly placed the position is secured with gum slips, and when completed represents the forme.

CARBON RESIST

The next step is to transfer the image to the cylinder, and this is accomplished with the aid of carbon tissue. The carbon paper is gelatine coated, the gelatine having a red pigment incorporated with it, which serves two useful purposes. It simplifies and helps to control the exposure, which ensures the paper backing leaving the image when it is developed. If the gelatine was transparent the image could not be clearly seen on the copper cylinder during etching. The tissue is made sensitive to light by soaking with potassium bichromate. It is squeegeed on to glass to dry in order to obtain a perfect surface. During the next stage a screen is used. The tissue is first placed in contact with the screen in a vacuum printing frame and printed by open arc lamps. The screen is quite distinct from that used in half-tone. In effect it is the reverse, instead of having opaque lines on the glass as in half-tone they are transparent lines at right angles, the intervening squares being opaque. Printing the screen on the sensitive tissue ensures the cell formation on the cylinder which subsequently holds the ink, and makes possible mechanical photogravure.

Gelatine, which is the basis of the carbon tissue, is, perhaps, the most difficult substance to handle and control in the photogravure process. Only a reliable firm of manufacturers, with knowledge and experience of the process, would be entrusted with the supply of the carbon tissue. The Autotype Company have always satisfied the most exacting demands and requirements of this process.

The screened tissue as it is now called, after the above printing, is again printed in contact with the sheet of positives or forme, and is then ready for transferring to the cylinder.

The copper cylinder on which the tissue is to be transferred is made perfectly clean and free from grease. The cylinder has certain markings made on its surface which correspond with similar markings on the back of the carbon resist, which ensures the work being placed squarely and in the correct position. A stream of water is made to flow over the surface of the cylinder and the tissue is squeegeed in contact. With the completion of the operation the carbon resist is ready to be developed.

The cylinder is placed in a tank of hot water which soon dissolves the soluble gelatine, and allows the paper backing to be peeled off. The soluble gelatine is then all washed away by continual laving with the hot water, which leaves an insoluble gelatine image in relief.

The cylinder is cooled down in very cold water and afterwards dried by revolving in front of an electric fan. The exposed portions of the copper cylinder or any portion not covered with the gelatine resist is carefully protected with an acid-resisting varnish; the etcher afterwards begins his work.

The etching is only of short duration and is effected with ferric chloride, taking about twenty to thirty minutes. The etching of large surfaces with a variety of subjects calls for a great deal of resource on the part of the etcher. It has only to be pointed out that when a half-tone block is etched it usually consists of one subject and should anything go wrong one block only is spoilt, but in photogravure the slightest blemish spoils a whole cylinder.

It is interesting to note that ferric chloride in a concentrated solution will not penetrate gelatine, it is only when water is added that it begins to penetrate it. This characteristic allows a certain amount of latitude. A series of five or six baths are usually employed during etching. The etching begins to take place when the gelatine is fully saturated with ferric chloride. It is obvious that the copper will commence to etch where the gelatine is thinnest, which is the shadow portions, and which is the deepest part of the etching. By continually pouring on the mordant the exhausted ferric chloride is replaced. The use of a number of baths of varying densities enables the etcher to control his etching and keep the gradation and detail of the original.

To obtain the best results with any degree of uniformity it is necessary to constantly watch the condition of the atmosphere. A hygrometer is used for testing the humidity, and a temperature of about 65° F. is usually maintained. The reason is soon manifest when it is realized how absorbent gelatine is. It has been mentioned that ferric chloride will not attack gelatine in a concentrated form, but with the presence of water it will do so readily. Uniformity is only possible when the density of the baths, humidity of the atmosphere and temperature are all known at all times. There are often other considerations, but those enumerated are the most serious.

After etching, the resist is cleaned from the cylinder and it is then ready for printing.

Certain revisions can be carried out, although of a limited character. Some portions may be darkened while others lightened if necessary.

There are three classes of machines for printing photogravure, rotary, sheet feed, and a sheet-feed machine which will print from thin copper plates attached to the cylinder by means of a simple clamp. The latter machine is of recent introduction and would appear to be a step nearer solving the problem of cylinder costs, but in each case the principle is the same. The elements are a copper printing cylinder and a rubber-covered impression roller, with a composition inking roller which revolves in a trough of semi-fluid volatile ink and is always in contact, or nearly so, with the printing cylinder. The whole of the printing roller is flooded with a film of ink, and by suitable adjustment of a flexible steel blade the superfluous ink is wiped from the surface, which drops back into the ink trough. The paper passing through the machine under pressure absorbs the ink which is left in the cells after inking.

On the rotary type of machine provision is made for the paper to run over steam drums which ensures rapid drying of the work. Beneath the delivery tapes, on the sheet-feed machines, coils of steam-heated pipes are arranged, and a cold air blast is gently blowing on top of the sheets as they come down to the delivery.

PRICES FOR ENGRAVING PHOTOGRAVURE FLAT PLATES

MANY printing houses are installing the class of photogravure machine which is known as the W. G. machine or L. & M. machine. The copper plates carrying the image to be printed are etched in the flat on thin plates of copper, which allow for bending round the cylinder and fastening for printing purposes with a suitable clamp. The prices for engraving these flat plates are as follows :

1. Minimum, 42 square inches (one subject only) £2 2s.,
   Plates carrying more than one subject to be charged at £2 2s., minimum of 42 square inches, plus 10s. 6d. minimum of 14 square inches for each subsequent subject, and 9d. per square inch after.

COMBINATION LINE AND TONE

2. Minimum, 42 square inches (one subject only) £2 16s.,
   Plates carrying more than one subject to be charged at £2 16s., minimum of 42 square inches, plus 14s. minimum of 14 square inches for each subsequent subject, and 1s. 1d. per square inch after.

TYPEMATTER

3. If from proofs submitted and is more than half the area of the plate, the charge will be one penny per square inch over the whole area of the plate. Anything less than half to be charged as half.

Titles and Captions	2s. each.
Copper Plates	extra.

The above prices are Net.

These engraved plates can be chromium faced at the rates given on page 108.

HAND PHOTOGRAVURE

THIS branch of the photogravure process is more suitable for small editions and especially where a very high standard of quality in the production is essential.

Naturally it is more expensive because the printing is carried out on a hand press, which restricts the number of copies per day. Large editions are, of course, possible, but some time must elapse before the work can be completed. The work, therefore, should go to press long before it is actually required.

The photography for hand photogravure is similar to that required for rotary printing, and which we have already described in a previous chapter. No screen is used in this process, therefore the carbon tissue is only printed with the image and transferred to the plate and etched.

It is, however, necessary to have some kind of cell formation, and the most simple method is to dust-grain the copper plate.

A wooden box attached to an axle with a flapping arrangement inside will give the desired effect. Finely powdered bitumen or resin is placed inside and the whole is revolved for several minutes, which cause the small particles of powder to become suspended.

The bulk of the powder is allowed to settle for a little while, and then the copper plate, which is perfectly clean, is placed inside for about half an hour. The time between stopping the box and inserting the copper plate governs the amount of grain which will fall on the copper, the suspended particles gradually settle and act as a base for the ultimate grain.

When the plate is withdrawn it is heated to a point which will fuse the gum. The amount of heat required depends on the style of subject to be reproduced. A heavy one full of colour needs a strong grain which the extra heating and manipulation of the dust will accomplish. Light subjects of fine detail require a more delicate grain.

When the plate has cooled the carbon tissue is squeegeed in position, the printing of which is similar to that already described, with the exception of the screen printing, which is omitted. The image is developed, dried, and the copper protected with an acid resist, when it is ready for etching.

The plate may be revised to an almost unlimited extent after a proof is taken from it.

The printing is carried out on a hand press. The plate is covered with an oily ink, the excess being scraped away, and a further wiping is carried out by hand until the operator is satisfied he will get the desired result.

There is a plate marking or plate sinking effect given to most prints in hand photogravure that cannot be successfully imitated by any other process, and which gives it a distinctive character. The work is printed on damp paper, which also adds greatly to the appearance of the finished result. The damping allows of very hard papers being used with a certainty of a smooth printed result.

SUNCHROME

SUNCHROME is the name of the depositing process of The Sun Engraving Company for electrolytically depositing chromium on copper printing surfaces.

The printing craft is one of continual progress and evolution, and the use of chromium for the facing of engraved plates for printing will be a veritable boon, owing to the many advantages it will confer.

Chromium has been termed " the wonder metal." Chromium is one of the hardest of known metals. It ranks next to the diamond in hardness. Its many advantages as a depositing metal have been realized, and experiments and constant efforts have been made during the past few years to overcome the difficulties of electro depositing of this metal. These difficulties have been mastered, and chromium can now be deposited without any intervening coating on any copper plate.

Its advantages are : When properly applied it is untarnishable, being entirely non-corrosive; it resists all alkalis and acids except fluoric and hydrochloric ; it can be deposited on steel, iron, copper, and most of the alloys—although a chromium finish is not yet satisfactory on zincos or stereos.

In giving a Sunchrome finish to half-tones on copper, tests have been made both before and after coating, which show that no adverse effects on the tone values of the prints have resulted; on the contrary, the coating, giving the plate a surface harder than steel, gives clearer and sharper prints.

In connection with the use of Sunchrome on colour plates, an important advantage should be borne in mind : as no alkalis affect it, it is useful in withstanding the corrosive action met with in some colour inks.

A Sunchrome finish greatly adds to the life of a copper plate. Four or five times as many impressions can be printed from it as from one that has not been deposited with chronium. Sunchrome can be deposited on any copper plate either before it has been used on the machine, or after a large number of prints have been taken from it. It is advisable, however, to give the plate its chromium deposit before use. It gives the plate an indefinite life, owing to the fact that a worn chromium face can be removed and re-coated in a few minutes, that is, providing the wear has not been allowed to penetrate through to the copper plate.

If in use for exceptionally long runs the chromium face begins to wear at the top and bottom of the plate, the Sunchrome finish can be removed and a new coating given without any detrimental effect, thereby making the plate practically indestructible, as the re-depositing process can be repeated time after time.

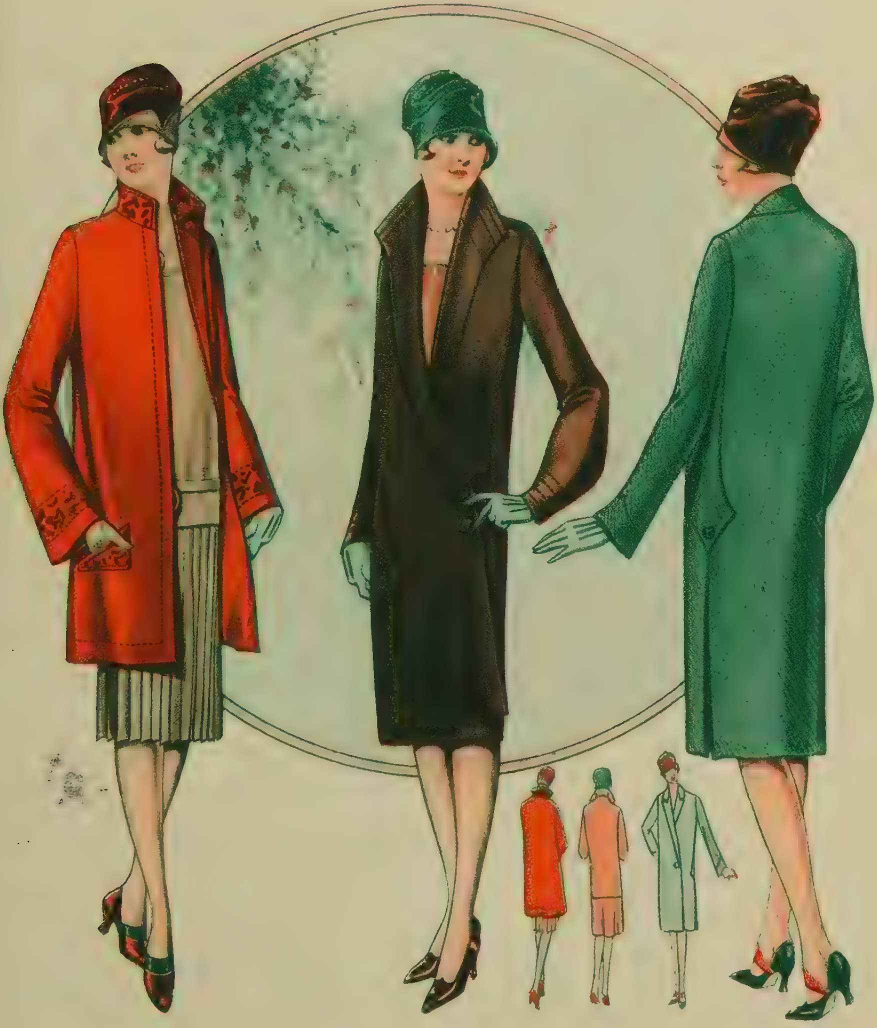
Electros can be Sunchrome finished and treated in exactly the same manner as the master plate.

Sunchrome can be applied to photogravure cylinders (any size cylinder can be chromium finished), and gives many advantages. Apart from its wearing properties, the very low coefficient of friction in chromium allows the cylinder to retain a high degree of polish, which reduces wear and adds to the efficiency of doctor wiping. Sunchrome finish to a photogravure cylinder makes a "doctor" or "scraper" last considerably longer. It has been known to set a doctor in the morning, place it upon the cylinder and run throughout the day without touching the cylinder or doctor. A cylinder will sometimes lose the delicate tones within a 50,000 run, but having had a Sunchrome finish it will last three or four times this number of revolutions, and the last copy will be in every way as good as the first.

The sensitiveness of a photogravure cylinder to injury from foreign elements such as dust, which is unavoidable in the machine room, is the experience of all photogravure printers. The risk of damage is considerably less by giving the cylinders a Sunchrome finish. A further great advantage is that for printing on rough-surfaced papers and cheaper super-calendered stock, a chromium-deposited cylinder is the perfect finish and surface.

PRICES

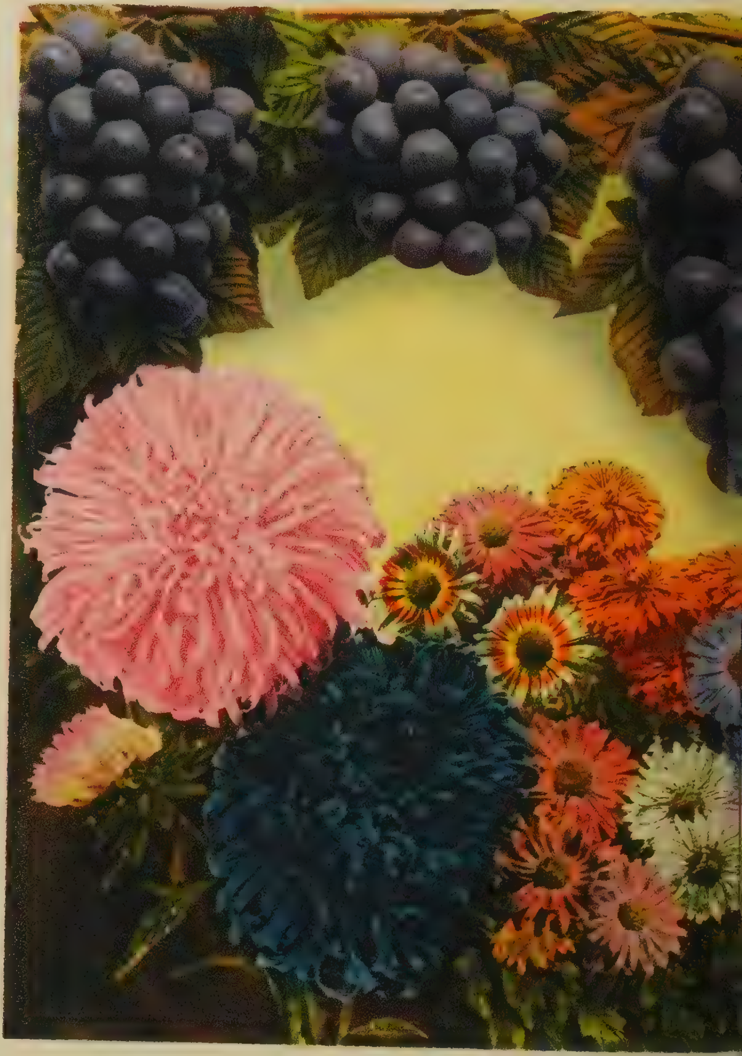
	Per square inch
	s. *d.*
Minimum (14 square inches) - - - - -	2 6
Beyond and up to 100 square inches - - - -	0 1½
Over 100 square inches - - - - - -	0 1



[By the courtesy of Weldons Ltd.

A Fashion Illustration

Reproduced and printed in two-colour "Sungravure"



An Example of Fou

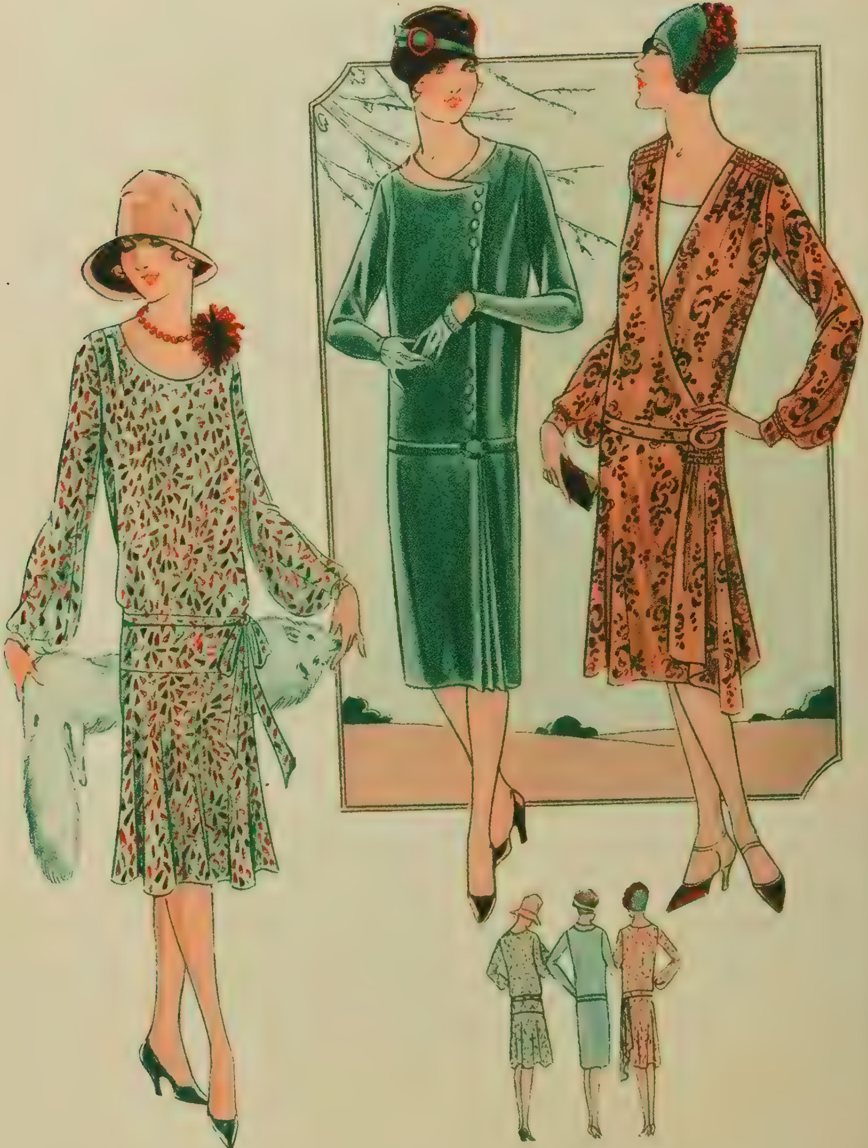
Reproduced direct f

The above illustration is a good example of
obtained by the "Sungravure" colour pro
nearest approximates the

ur " Sungravure "

natural objects

depth, and richness of colour values
our Photogravure is the process that
ues of the original



[By the courtesy of Weldons Ltd.

A Fashion Illustration

Reproduced and printed in two-colour "Sungravure"

DUPLICATING : STEREOTYPING ELECTROTYPING

As a source of economy and to meet healthy competition, many printers find it necessary to duplicate some of their illustrations and much of their typematter. The many demands made upon the printing industry, especially in relation to volume and speed required to produce printed matter at the minimum of cost, make it essential that modern printing surfaces should be duplicated.

In book houses it is the usual practice to hold stereo moulds of most of the books which they produce. It not only conserves space, but allows the metal and type to be "worked" instead of lying idle.

It is, however, in the realm of the newspaper press that stereos play their greater part. It is by the aid of stereotypes that newspapers are able to print vast editions in such a short space of time.

The speed with which some campaign advertisement matter is required and the special character which many possess, make it necessary for certain offices to specialize in this class of work. Stereotypes are then made and distributed to the many newspapers and periodicals, which thus ensures the advertisement appearing without the slightest variation in character.

Without the invention of stereotyping or electrotyping our newspapers could hardly have coped with the enormous circulations which many enjoy. Apart from the fact that the process allows of duplication it also enables curved plates to be made without which the huge rotary presses would be useless. The stereo has been a contributing factor towards bringing the price of newspapers within the reach of everybody. Stereotypes make the rotary press practical, and the speed and economy make a modern daily possible.

There are many small rotary presses on the market running at very fast speeds which require curved stereo or electro plates.

The chief advantage of the stereotype is speed and where speed is an essential consideration stereos should be employed.

The hard metal stereos have made the duplication of half-tone blocks possible by this method, and when these are nickel faced considerable runs are obtained from them.

A well-made hard-metal stereo, nickel faced, approximates the original plate very closely indeed.

The stereo is made by impressing the typematter or illustrations to be reproduced into a moist flong, composed of blotting and tissue papers, held firmly together with paste that will harden after the impression is secured. The moisture is extracted through the application of heat and the impressed dried flong forms a matrix. It is placed in a casting box, molten metal is poured upon it which rapidly chills. All that remains is to trim, when it is ready for the press in a few minutes or even seconds. Of course, most stereos sold to the trade are mounted. Papier mâché matrices are sometimes used by advertising agents owing to the ease of posting at home and abroad. The hard metal stereos for illustrations are usually made from a plaster cast, although the new patent flongs on the market give exceptionally fine results.

Stereo founders are most anxious to supply their customers with as perfect a plate as possible, yet if the type formes which are sent to them are defective, as in too many instances is the case, the stereo from them will show these defects. Many blemishes can, however, be made good afterwards to a certain degree, but this work is always an extra charge. Care should always be exercised in locking up the forme, adjusting to absolute squareness, the copy being carefully read, and all letters should be perfectly sound. The client will then have a good case should anything go wrong.

The electrotype in its application to printing is a process which duplicates the forme of type, the engraving, or any combination of relief printing surfaces. The plates are made flat or curved which can be used for flat bed or rotary machines. It ensures ease and speed in making up formes. It eliminates the wear of type and engravings.

Electros, if nickel faced, are not subject to chemical corrosion of coloured inks. They ensure against accident and deterioration of originals. They are an economy as they lessen the investment of capital in metal, and the plates can be stored at the minimum of cost and storing room.

Electros should be selected when and where a very fine quality of work is required, and with careful make-ready they have very good working and wearing qualities. The galvano electros are made from lead moulds.

The type forme or engraving which is to be electrotyped is pressed into a sheet of wax or other plastic substance; by plastic is meant a relatively soft metal, sheet lead being used for moulding certain classes of work. The mould, if it is not lead, is polished with graphite to become conductive to electricity, is placed in a plating bath where a deposit of copper is made of sufficient thickness so that it may be stripped from the mould. The deposit is most frequently referred to as the shell. It is then placed face down in a flat steel casting pan, tin foil is fused to act as a flux, and molten metal poured on until a thickness of nearly ⅜ inch is obtained. After cooling, this plate is sawn, planed, shaved, strengthened and otherwise manipulated. The various operations require highly skilled workmen and a large number of machines.

Nickel duplicates can now be obtained in much the same way as ordinary copper electros. The nickel shell is comparatively thick and will allow hundreds of thousands of impressions being printed from them. They are naturally more expensive, and would only be used for long runs and special repeat work.

Electros can now be faced with chromium (see article on Sunchrome, p. 107), which greatly adds to their life and usefulness.

READY-RECKONER
FOR
COLOUR AND HALF-TONES
ELECTROS, STEREOS
MOULDS, ETC.

THE PRICES for work given in the following tables include 15 per cent. advance, those given in the Price List are subject to the 15 per cent. advance.

When measuring electros or stereos to ascertain the number of chargeable square inches, the measurements are taken from the back of the plate, i.e. ¼ inch must be added to the face measurements of the master plate to allow for the flange :

Master Plate .. 6 × 4 = 24 square inches.
Electro or Stereo 6¼ × 4¼ = 26½ square inches.
(Charged as 27 square inches.)

In calculating the total, fractions of an inch less than half an inch will be disregarded, and fractions of an inch equal to half an inch or more will be charged as one inch.

PRICE LIST

The following schedule of prices for electrotyping and stereotyping is subject to 15 per cent. advance.

ELECTROS

(Ordinary Wax-moulded)

	Per square inch.	Minimum.	Lots of 6 or more (however comprised), those not exceeding 9 sq. inches
	s. *d.*	*s.* *d.*	*s.* *d.*
From Type, Woodcuts, Line Zincos, or Half-tones - -	0 3	2 6	2 3
Two or more colours	Per colour		
Half-tone Process - -	0 3¾	3 3	
Line Process - - - -	0 3¼	2 9	
	Per sq. in.	6 sq. ins.	
Binders' Electros - - -	0 4½	2 6	
Embossing - - - -	0 7½	3 0	

ALBERT GALVANOS

(Lead-moulded Electros)

Specially Recommended for Colour-work and High-class Printing

	Per in.	Min. Ins.	Min. Cost
	s. *d.*		*s.* *d.*
Half-tone and Line - - -	0 3½	10	2 11
Line Colour (per colour) - -	0 3½	10 Per colour	2 11
Two-Colour Half-tone (per set)	0 8½	10	7 1
Three-Colour ,, ,, -	1 2	10	11 8
Four-Colour ,, ,, -	1 6½	10 Per set	15 5
Binders' Electros - - -	0 5	6	2 6

STEREOS

	Minimum and First 8 inches of every block	Each inch in excess of 8 in. Per square inch	Lots of 6 or more (however comprised), those not exceeding 7 sq. inches
	s. d.	s. d.	s. d.
Ordinary - - - - - -	1 8	0 1¾	1 6 each
Nickel-faced - - - - -	2 0	0 2	1 9 each
Two or more colours Line or Half-tone - -	Per colour 2 2	Per colour 0 2¾	
Binders' - - - - - -	Per sq. in. 0 3	7 sq. inches 1 9	
Cast Solid - - - - -	0 5	2 6	
,, ,, (metal returnable) -	0 1⅝	1 4	
Unmounted plates of any of above, ⅛d. per inch less, excepting plates of minimum size.			
Nickel-facing (per sq. inch) -	0 0⅛	0 6	
Moulds - - - - - -	1 8	0 1½	

MISCELLANEOUS

	Per inch	Minimum
	s. d.	*s. d.*
Piercings (inside) - - - - -	—	0 9
,, (outside) - - - - -	—	0 4
Holes (drilled only, no finishing) - -	—	0 1½
Rotary Stereos (metal returnable) up to 120 square inches - - - - -	0 2¼	2 3
Do., beyond 120 square inches - -	0 1½	—
Corrections - - - - - -	—	0 9
Inserting Electro Cuts - - - -	—	1 2
Inserting Originals (sweated in) - - -	—	2 3
Metal Plugs - - - - - -	—	From 0 9
Reducing Cuts, for every side single colour -	—	0 2
,, ,, ,, ,, two colours - -	—	0 4
,, ,, ,, ,, three colours or more - -	—	0 6
Cutting Ovals - - - - - -	—	1 6
,, ,, with rule added - - -	—	2 3
Adding Rules - - - - - -	—	From 0 9
Solid Mounting - - - - -	0 6	2 0
Bringing up Half-tones or Zinc Originals to pica (sweated) - - - - -	0 1½	1 0
Inserting Electros (pinned only) - - -	—	0 6
,, Originals (pinned, with nonpareil beneath) - - - - - -	0 1¼	1 0
Shells only, tinned, half electro unmounted rate - - - - - - - - -	—	2 6
Backing up and finishing Shells, three-fourths of electro rate - - - - - -	—	2 6

GENERAL

Duplicates of portion only of any original.

Where the area required is one-third or more of the area of the original block, the area of the required portion only must be charged; but where the area of the required portion is less than one-third of the area of the original block, double the area of the required portion must be charged, up to the equivalent of one-third the area of the original block.

		s.	*d.*
Minimums :	Single colour - - - - - -	2	6
Do.	Two or more colours - - - - - -	3	6
		Per colour	

In duplicating formes of type received without foundry furniture, a minimum charge of 10d. extra will be made for imposition for sizes up to 80 square inches; larger sizes in proportion.

In duplicating type received tied up only, a minimum charge of 1s. will be made for imposing sizes up to 24 square inches; larger sizes in proportion.

Imposing blocks to be charged at time rate, with a minimum of 1s.

Each block or plate will be treated separately as containing a definite number of square inches, fractions of an inch less than half an inch being disregarded, and fractions of an inch equal to half an inch or more being charged as one inch.

All work will be measured from the back, so as to include the bevel.

In totalling invoices, fractions of a penny equal to a ½d. or more must be charged as 1d

In no case will moulds be delivered to customers unless charged at mould rate *in addition* to cost of plates.

In casting from moulds supplied by customers, no allowance will be made for the moulds, i.e. the casts will be charged for at full stereotyping rate. All moulds to be charged ¼ inch all round in addition to the matter so as to include the clump.

Where moulds are ordered from moulds, the necessary stereo to enable the work to be carried out must be charged at full rates.

The term Bookwork applies to author's composition of not less than 16 pp., which is intended for the ordinary literary or publishing world, and is not a composition incidental to the production of salesmanship of any commodities.

Until further notice, metal furniture will be invoiced out as goods at not less than 6d. per lb., and must be paid for in current accounts; 5d. per lb. may be allowed on return. Carriage will not be paid. All prices are counter prices.

Chases will be charged at market rates, and must be paid for in current account.

Narrow electros and stereos under 1 inch in width to be charged as 1 inch, i.e. 16 inches by ¼ inch to be charged 16 inches.

Carriage home on electros and stereos only of an invoice value of not less than £3 may be paid. Carriage on type must not be paid.

ELECTROS

Ordinary · Wax-moulded

From **Type, Woodcuts, Line, or Half-tones**
Minimum **10** square inches **2/11**

Sq. ins.	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
11	3	2	41		11	10	71	1	0	5	101	1	9	1
2	3	6	2		12	1	2	1	0	9	2	1	9	4
3	3	9	3		12	4	3	1	1	0	3	1	9	7
4	4	0	4		12	8	4	1	1	3	4	1	9	11
5	4	4	5		12	11	5	1	1	7	5	1	10	2
6	4	7	6		13	3	6	1	1	10	6	1	10	6
7	4	11	7		13	6	7	1	2	2	7	1	10	9
8	5	2	8		13	10	8	1	2	5	8	1	11	1
9	5	6	9		14	1	9	1	2	9	9	1	11	4
20	5	9	50		14	5	80	1	3	0	110	1	11	8
21	6	1	51		14	8	81	1	3	4	111	1	11	11
2	6	4	2		15	0	2	1	3	7	2	1	12	3
3	6	7	3		15	3	3	1	3	10	3	1	12	6
4	6	11	4		15	6	4	1	4	2	4	1	12	9
5	7	2	5		15	10	5	1	4	5	5	1	13	1
6	7	6	6		16	1	6	1	4	9	6	1	13	4
7	7	9	7		16	5	7	1	5	0	7	1	13	8
8	8	1	8		16	8	8	1	5	4	8	1	13	11
9	8	4	9		17	0	9	1	5	7	9	1	14	3
30	8	8	60		17	3	90	1	5	11	120	1	14	6
31	8	11	61		17	7	91	1	6	2				
2	9	3	2		17	10	2	1	6	6				
3	9	6	3		18	1	3	1	6	9				
4	9	9	4		18	5	4	1	7	0				
5	10	1	5		18	8	5	1	7	4				
6	10	4	6		19	0	6	1	7	7				
7	10	8	7		19	3	7	1	7	11				
8	10	11	8		19	7	8	1	8	2				
9	11	3	9		19	10	9	1	8	6				
40	11	6	70	1	0	2	100	1	8	9				

NOTE.—Lots of six or more (however comprised) none of which exceed nine sq. ins., 2s. 7d. each.

ELECTROS

Ordinary Wax-moulded

Colour Line. Two or More Colours
Minimum **10** square inches per colour **3/2**

SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.
11	-	3	6	**41**	-	12	9	**71**	1	2	2	**101**	1	11	6
2	-	3	9	**2**	-	13	2	**2**	1	2	5	**2**	1	11	10
3	-	4	0	**3**	-	13	5	**3**	1	2	9	**3**	1	12	1
4	-	4	5	**4**	-	13	9	**4**	1	3	1	**4**	1	12	5
5	-	4	8	**5**	-	14	0	**5**	1	3	5	**5**	1	12	9
6	-	5	0	**6**	-	14	5	**6**	1	3	8	**6**	1	13	1
7	-	5	3	**7**	-	14	8	**7**	1	4	0	**7**	1	13	4
8	-	5	8	**8**	-	15	0	**8**	1	4	4	**8**	1	13	8
9	-	5	11	**9**	-	15	3	**9**	1	4	8	**9**	1	13	11
20	-	6	3	**50**	-	15	8	**80**	1	4	11	**110**	1	14	4
21	-	6	6	**51**	-	15	11	**81**	1	5	3	**111**	1	14	7
2	-	6	11	**2**	-	16	2	**2**	1	5	7	**2**	1	14	11
3	-	7	2	**3**	-	16	6	**3**	1	5	11	**3**	1	15	2
4	-	7	6	**4**	-	16	11	**4**	1	6	2	**4**	1	15	7
5	-	7	9	**5**	-	17	2	**5**	1	6	6	**5**	1	15	10
6	-	8	2	**6**	-	17	5	**6**	1	6	10	**6**	1	16	2
7	-	8	5	**7**	-	17	9	**7**	1	7	2	**7**	1	16	5
8	-	8	9	**8**	-	18	1	**8**	1	7	5	**8**	1	16	10
9	-	9	0	**9**	-	18	5	**9**	1	7	9	**9**	1	17	1
30	-	9	5	**60**	-	18	8	**90**	1	8	1	**120**	1	17	5
31	-	9	8	**61**	-	19	0	**91**	1	8	5				
2	-	10	0	**2**	-	19	4	**2**	1	8	8				
3	-	10	3	**3**	-	19	8	**3**	1	9	0				
4	-	10	8	**4**	-	19	11	**4**	1	9	4				
5	-	10	11	**5**	1	0	3	**5**	1	9	7				
6	-	11	3	**6**	1	0	8	**6**	1	9	11				
7	-	11	6	**7**	1	0	10	**7**	1	10	3				
8	-	11	11	**8**	1	1	2	**8**	1	10	7				
9	-	12	2	**9**	1	1	6	**9**	1	10	10				
40	-	12	6	**70**	1	1	10	**100**	1	11	2				

ELECTROS

Ordinary Wax-moulded

Two Colour Half-tone 7/2
Minimum **10** square inches per set

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
11		8	0	**41**	1	9	6	**71**	2	11	1	**101**	3	12	8
2		8	8	**2**	1	10	2	**2**	2	11	9	**2**	3	13	4
3		9	5	**3**	1	11	0	**3**	2	12	6	**3**	3	14	1
4		10	1	**4**	1	11	8	**4**	2	13	2	**4**	3	14	9
5		10	10	**5**	1	12	5	**5**	2	14	0	**5**	3	15	6
6		11	6	**6**	1	13	1	**6**	2	14	8	**6**	3	16	2
7		12	3	**7**	1	13	10	**7**	2	15	5	**7**	3	17	0
8		12	11	**8**	1	14	6	**8**	2	16	1	**8**	3	17	8
9		13	9	**9**	1	15	3	**9**	2	16	10	**9**	3	18	5
20		14	5	**50**	1	15	11	**80**	2	17	6	**110**	3	19	1
21		15	2	**51**	1	16	9	**81**	2	18	3	**111**	3	19	10
2		15	10	**2**	1	17	5	**2**	2	18	11	**2**	4	0	9
3		16	5	**3**	1	18	2	**3**	2	19	9	**3**	4	1	3
4		17	3	**4**	1	18	10	**4**	3	0	5	**4**	4	1	11
5		18	0	**5**	1	19	7	**5**	3	1	2	**5**	4	2	9
6		18	8	**6**	2	0	3	**6**	3	1	10	**6**	4	3	5
7		19	5	**7**	2	1	0	**7**	3	2	7	**7**	4	4	2
8	1	0	2	**8**	2	1	8	**8**	3	3	3	**8**	4	4	10
9	1	0	11	**9**	2	2	6	**9**	3	4	0	**9**	4	5	10
30	1	1	7	**60**	2	3	2	**90**	3	4	8	**120**	4	6	3
31	1	2	4	**61**	2	3	11	**91**	3	5	6				
2	1	3	0	**2**	2	4	8	**2**	3	6	1				
3	1	3	9	**3**	2	5	4	**3**	3	6	11				
4	1	4	5	**4**	2	6	2	**4**	3	7	7				
5	1	5	3	**5**	2	6	9	**5**	3	8	4				
6	1	5	11	**6**	2	7	8	**6**	3	9	0				
7	1	6	8	**7**	2	8	3	**7**	3	9	9				
8	1	7	4	**8**	2	8	11	**8**	3	10	5				
9	1	8	1	**9**	2	9	8	**9**	3	11	3				
40	1	8	9	**70**	2	10	4	**100**	3	11	11				

ELECTROS

Ordinary Wax-moulded

Three Colour Half-tone
Minimum, **10** square inches per set **10/10**

Sq. ins.	£	*s.*	*d.*	Sq. ins.	£	*s.*	*d.*	Sq. ins.	£	*s.*	*d.*	Sq. ins.	£	*s.*	*d.*
11	-	11	11	**41**	- 2	4	2	**71**	- 3	16	7	**101**	- 5	8	11
2	-	12	11	**2**	- 2	5	4	**2**	- 3	17	8	**2**	- 5	10	0
3	-	14	0	**3**	- 2	6	4	**3**	- 3	18	8	**3**	- 5	11	1
4	-	15	1	**4**	- 2	7	5	**4**	- 3	19	10	**4**	- 5	12	2
5	-	16	2	**5**	- 2	8	6	**5**	- 4	0	10	**5**	- 5	13	2
6	-	17	3	**6**	- 2	9	8	**6**	- 4	1	11	**6**	- 5	14	4
7	-	18	4	**7**	- 2	10	8	**7**	- 4	3	0	**7**	- 5	15	5
8	-	19	6	**8**	- 2	11	9	**8**	- 4	4	1	**8**	- 5	16	5
9	- 1	0	6	**9**	- 2	12	10	**9**	- 4	5	2	**9**	- 5	17	6
20	- 1	1	7	**50**	- 2	13	11	**80**	- 4	6	3	**110**	- 5	18	8
21	- 1	2	8	**51**	- 2	15	0	**81**	- 4	7	4	**111**	- 5	19	8
2	- 1	3	9	**2**	- 2	16	1	**2**	- 4	8	6	**2**	- 6	0	9
3	- 1	4	10	**3**	- 2	17	2	**3**	- 4	9	6	**3**	- 6	1	10
4	- 1	5	11	**4**	- 2	18	3	**4**	- 4	10	7	**4**	- 6	3	0
5	- 1	6	11	**5**	- 2	19	4	**5**	- 4	11	8	**5**	- 6	4	0
6	- 1	8	1	**6**	- 3	0	5	**6**	- 4	12	9	**6**	- 6	5	1
7	- 1	9	2	**7**	- 3	1	5	**7**	- 4	13	10	**7**	- 6	6	2
8	- 1	10	2	**8**	- 3	2	7	**8**	- 4	14	11	**8**	- 6	7	3
9	- 1	11	3	**9**	- 3	3	8	**9**	- 4	15	11	**9**	- 6	8	4
30	- 1	12	5	**60**	- 3	4	9	**90**	- 4	17	1	**120**	- 6	9	5
31	- 1	13	5	**61**	- 3	5	9	**91**	- 4	18	2				
2	- 1	14	6	**2**	- 3	6	11	**2**	- 4	19	3				
3	- 1	15	7	**3**	- 3	7	11	**3**	- 5	0	3				
4	- 1	16	9	**4**	- 3	9	0	**4**	- 5	1	5				
5	- 1	17	9	**5**	- 3	10	1	**5**	- 5	2	5				
6	- 1	18	10	**6**	- 3	11	2	**6**	- 5	3	6				
7	- 1	19	11	**7**	- 3	12	3	**7**	- 5	4	7				
8	- 2	1	0	**8**	- 3	13	4	**8**	- 5	5	9				
9	- 2	2	1	**9**	- 3	14	5	**9**	- 5	6	9				
40	- 2	3	2	**70**	- 3	15	6	**100**	- 5	7	10				

ELECTROS

Ordinary Wax-moulded

Four Colour Half-tone
Minimum **10** square inches
14/5

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
11	-	15	10	**41**	- 2	18	11	**71**	- 5	2	1	**101**	- 7	5	2
2	-	17	3	**2**	- 3	0	5	**2**	- 5	3	6	**2**	- 7	6	8
3	-	18	8	**3**	- 3	1	10	**3**	- 5	4	11	**3**	- 7	8	1
4	- 1	0	2	**4**	- 3	3	3	**4**	- 5	6	5	**4**	- 7	9	6
5	- 1	1	7	**5**	- 3	4	11	**5**	- 5	7	10	**5**	- 7	10	11
6	- 1	3	0	**6**	- 3	5	8	**6**	- 5	9	3	**6**	- 7	12	5
7	- 1	4	5	**7**	- 3	7	7	**7**	- 5	10	5	**7**	- 7	13	10
8	- 1	5	11	**8**	- 3	9	0	**8**	- 5	12	2	**8**	- 7	15	3
9	- 1	7	4	**9**	- 3	10	5	**9**	- 5	13	7	**9**	- 7	16	8
20	- 1	8	9	**50**	- 3	11	11	**80**	- 5	15	0	**110**	- 7	18	2
21	- 1	10	2	**51**	- 3	13	4	**81**	- 5	16	5	**111**	- 7	19	7
2	- 1	11	8	**2**	- 3	14	9	**2**	- 5	17	11	**2**	- 8	1	0
3	- 1	13	1	**3**	- 3	16	2	**3**	- 5	19	4	**3**	- 8	2	5
4	- 1	14	6	**4**	- 3	17	8	**4**	- 6	0	9	**4**	- 8	3	11
5	- 1	15	11	**5**	- 3	19	1	**5**	- 6	2	2	**5**	- 8	5	4
6	- 1	17	5	**6**	- 4	0	6	**6**	- 6	3	8	**6**	- 8	6	9
7	- 1	18	10	**7**	- 4	1	11	**7**	- 6	5	1	**7**	- 8	8	2
8	- 2	0	3	**8**	- 4	3	5	**8**	- 6	6	6	**8**	- 8	9	8
9	- 2	1	8	**9**	- 4	4	10	**9**	- 6	7	11	**9**	- 8	11	1
30	- 2	3	2	**60**	- 4	6	3	**90**	- 6	9	5	**120**	- 8	12	6
31	- 2	4	7	**61**	- 4	7	8	**91**	- 6	10	10				
2	- 2	6	0	**2**	- 4	9	2	**2**	- 6	12	3				
3	- 2	7	5	**3**	- 4	10	7	**3**	- 6	13	8				
4	- 2	8	11	**4**	- 4	12	0	**4**	- 6	15	2				
5	- 2	10	4	**5**	- 4	13	5	**5**	- 6	16	7				
6	- 2	11	9	**6**	- 4	14	11	**6**	- 6	18	0				
7	- 2	13	2	**7**	- 4	16	4	**7**	- 6	19	5				
8	- 2	14	8	**8**	- 4	17	9	**8**	- 7	0	11				
9	- 2	16	1	**9**	- 4	19	2	**9**	- 7	2	4				
40	- 2	17	6	**70**	- 5	0	8	**100**	- 7	3	9				

BINDERS' ELECTROS

Ordinary Wax-moulded

Minimum, **6** square inches **2/11**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
7	-	3	1	**37**	-	16	0	**67**	- 1	8	11	**97**	- 2	1	11
8	-	3	6	**8**	-	16	5	**8**	- 1	9	4	**8**	- 2	2	3
9	-	3	11	**9**	-	16	11	**9**	- 1	9	10	**9**	- 2	2	9
10	-	4	4	**40**	-	17	3	**70**	- 1	10	2	**100**	- 2	3	2
11	-	4	10	**41**	-	17	9	**71**	- 1	10	8	**101**	- 2	3	8
2	-	5	2	**2**	-	18	1	**2**	- 1	11	1	**2**	- 2	4	0
3	-	5	8	**3**	-	18	7	**3**	- 1	11	6	**3**	- 2	4	6
4	-	6	1	**4**	-	19	0	**4**	- 1	11	11	**4**	- 2	4	10
5	-	6	6	**5**	-	19	6	**5**	- 1	12	5	**5**	- 2	5	4
6	-	6	11	**6**	-	19	10	**6**	- 1	12	9	**6**	- 2	5	9
7	-	7	5	**7**	- 1	0	4	**7**	- 1	13	3	**7**	- 2	6	2
8	-	7	9	**8**	- 1	0	9	**8**	- 1	13	8	**8**	- 2	6	7
9	-	8	3	**9**	- 1	1	2	**9**	- 1	14	2	**9**	- 2	7	1
20	-	8	8	**50**	- 1	1	7	**80**	- 1	14	6	**110**	- 2	7	5
21	-	9	1	**51**	- 1	2	1	**81**	- 1	15	0	**111**	- 2	7	11
2	-	9	6	**2**	- 1	2	5	**2**	- 1	15	4	**2**	- 2	8	4
3	-	10	0	**3**	- 1	2	11	**3**	- 1	15	10	**3**	- 2	8	9
4	-	10	4	**4**	- 1	3	4	**4**	- 1	16	3	**4**	- 2	9	2
5	-	10	10	**5**	- 1	3	9	**5**	- 1	16	9	**5**	- 2	9	8
6	-	11	3	**6**	- 1	4	2	**6**	- 1	17	1	**6**	- 2	10	0
7	-	11	8	**7**	- 1	4	8	**7**	- 1	17	7	**7**	- 2	10	6
8	-	12	1	**8**	- 1	5	0	**8**	- 1	18	0	**8**	- 2	10	11
9	-	12	7	**9**	- 1	5	6	**9**	- 1	18	5	**9**	- 2	11	5
30	-	12	11	**60**	- 1	5	11	**90**	- 1	18	10	**120**	- 2	11	9
31	-	13	5	**61**	- 1	6	4	**91**	- 1	19	4				
2	-	13	10	**2**	- 1	6	9	**2**	- 1	19	8				
3	-	14	3	**3**	- 1	7	3	**3**	- 2	0	2				
4	-	14	8	**4**	- 1	7	7	**4**	- 2	0	7				
5	-	15	2	**5**	- 1	8	1	**5**	- 2	1	0				
6	-	15	6	**6**	- 1	8	6	**6**	- 2	1	5				

EMBOSSING ELECTROS

Ordinary Wax-moulded

Minimum **5** square inches **3/6**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
6	-	4	4	**36**	- 1	5	11	**66**	- 2	7	5	**96**	- 3	9	0
7	-	5	1	**7**	- 1	6	8	**7**	- 2	8	2	**7**	- 3	9	9
8	-	5	9	**8**	- 1	7	4	**8**	- 2	8	11	**8**	- 3	10	5
9	-	6	6	**9**	- 1	8	1	**9**	- 2	9	8	**9**	- 3	11	3
10	-	7	2	**40**	- 1	8	9	**70**	- 2	10	4	**100**	- 3	11	11
11	-	8	0	**41**	- 1	9	6	**71**	- 2	11	1	**101**	- 3	12	8
2	-	8	8	**2**	- 1	10	2	**2**	- 2	11	9	**2**	- 3	13	4
3	-	9	5	**3**	- 1	11	0	**3**	- 2	12	6	**3**	- 3	14	1
4	-	10	1	**4**	- 1	11	8	**4**	- 2	13	2	**4**	- 3	14	9
5	-	10	9	**5**	- 1	12	5	**5**	- 2	14	0	**5**	- 3	15	6
6	-	11	6	**6**	- 1	13	1	**6**	- 2	14	8	**6**	- 3	16	2
7	-	12	3	**7**	- 1	13	10	**7**	- 2	15	5	**7**	- 3	17	0
8	-	12	11	**8**	- 1	14	6	**8**	- 2	16	1	**8**	- 3	17	8
9	-	13	9	**9**	- 1	15	3	**9**	- 2	16	10	**9**	- 3	18	5
20	-	14	5	**50**	- 1	15	11	**80**	- 2	17	6	**110**	- 3	19	1
21	-	15	2	**51**	- 1	16	9	**81**	- 2	18	3	**111**	- 3	19	10
2	-	15	10	**2**	- 1	17	5	**2**	- 2	18	11	**2**	- 4	0	6
3	-	16	7	**3**	- 1	18	2	**3**	- 2	19	9	**3**	- 4	1	3
4	-	17	3	**4**	- 1	18	10	**4**	- 3	0	5	**4**	- 4	1	11
5	-	18	0	**5**	- 1	19	7	**5**	- 3	1	2	**5**	- 4	2	9
6	-	18	8	**6**	- 2	0	3	**6**	- 3	1	10	**6**	- 4	3	5
7	-	19	6	**7**	- 2	1	0	**7**	- 3	2	7	**7**	- 4	4	1
8	- 1	0	2	**8**	- 2	1	8	**8**	- 3	3	3	**8**	- 4	4	10
9	- 1	0	11	**9**	- 2	2	6	**9**	- 3	4	0	**9**	- 4	5	7
30	- 1	1	7	**60**	- 2	3	2	**90**	- 3	4	8	**120**	- 4	6	3
31	- 1	2	4	**61**	- 2	3	11	**91**	- 3	5	6				
2	- 1	3	0	**2**	- 2	4	7	**2**	- 3	6	2				
3	- 1	3	9	**3**	- 2	5	4	**3**	- 3	6	11				
4	- 1	4	5	**4**	- 2	6	0	**4**	- 3	7	7				
5	- 1	5	3	**5**	- 2	6	9	**5**	- 3	8	4				

ALBERT GALVANOS

Lead-moulded Electros

Half-tone and Line Minimum **10** square inches 3/4

Colour Line. Per colour Minimum **10** square inches 3/4

SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.	SQ. INS.	£	s.	d.
11	-	3	8	41	-	13	10	71	- 1	3	10	101	- 1	13	11
2	-	4	0	2	-	14	1	2	- 1	4	2	2	- 1	14	3
3	-	4	5	3	-	14	5	3	- 1	4	7	3	- 1	14	7
4	-	4	8	4	-	14	9	4	- 1	4	10	4	- 1	14	11
5	-	5	1	5	-	15	2	5	- 1	5	3	5	- 1	15	3
6	-	5	5	6	-	15	5	6	- 1	5	6	6	- 1	15	7
7	-	5	8	7	-	15	10	7	- 1	5	11	7	- 1	15	11
8	-	6	1	8	-	16	1	8	- 1	6	2	8	- 1	16	3
9	-	6	5	9	-	16	6	9	- 1	6	7	9	- 1	16	7
20	-	6	9	50	-	16	9	80	- 1	6	10	110	- 1	16	11
21	-	7	1	51	-	17	2	81	- 1	7	3	111	- 1	17	3
2	-	7	5	2	-	17	5	2	- 1	7	6	2	- 1	17	7
3	-	7	9	3	-	17	10	3	- 1	7	11	3	- 1	18	0
4	-	8	1	4	-	18	1	4	- 1	8	2	4	- 1	18	4
5	-	8	5	5	-	18	6	5	- 1	8	7	5	- 1	18	7
6	-	8	9	6	-	18	9	6	- 1	8	10	6	- 1	18	11
7	-	9	1	7	-	19	2	7	- 1	9	3	7	- 1	19	4
8	-	9	5	8	-	19	5	8	- 1	9	6	8	- 1	19	7
9	-	9	9	9	-	19	10	9	- 1	9	11	9	- 2	0	0
30	-	10	1	60	- 1	0	2	90	- 1	10	2	120	- 2	0	3
31	-	10	5	61	- 1	0	6	91	- 1	10	7				
2	-	10	9	2	- 1	0	10	2	- 1	10	10				
3	-	11	2	3	- 1	1	2	3	- 1	11	3				
4	-	11	5	4	- 1	1	6	4	- 1	11	7				
5	-	11	9	5	- 1	1	10	5	- 1	11	11				
6	-	12	1	6	- 1	2	2	6	- 1	12	3				
7	-	12	6	7	- 1	2	6	7	- 1	12	7				
8	-	12	9	8	- 1	2	10	8	- 1	12	11				
9	-	13	2	9	- 1	3	2	9	- 1	13	3				
40	-	13	5	70	- 1	3	6	100	- 1	13	7				

ALBERT GALVANOS

Lead-moulded Electros

Two Colour Half-tone
Minimum **10** square inches, per set 8/2

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
11	-	9	0	**41**	1	13	5	**71**	2	17	11	**101**	4	2	4
2	-	9	9	**2**	1	14	3	**2**	2	18	8	**2**	4	3	1
3	-	10	8	**3**	1	15	1	**3**	2	19	6	**3**	4	4	0
4	-	11	5	**4**	1	15	10	**4**	3	0	3	**4**	4	4	9
5	-	12	3	**5**	1	16	9	**5**	3	1	2	**5**	4	5	7
6	-	13	1	**6**	1	17	6	**6**	3	1	11	**6**	4	6	4
7	-	13	11	**7**	1	18	4	**7**	3	2	9	**7**	4	7	2
8	-	14	8	**8**	1	19	2	**8**	3	3	7	**8**	4	8	0
9	-	15	6	**9**	2	0	0	**9**	3	4	5	**9**	4	8	10
20	-	16	4	**50**	2	0	9	**80**	3	5	2	**110**	4	9	8
21	-	17	2	**51**	2	1	7	**81**	3	6	1	**111**	4	10	5
2	-	17	10	**2**	2	2	5	**2**	3	6	10	**2**	4	11	2
3	-	18	9	**3**	2	3	3	**3**	3	7	8	**3**	4	12	0
4	-	19	7	**4**	2	4	0	**4**	3	8	5	**4**	4	12	10
5	1	0	5	**5**	2	4	10	**5**	3	9	4	**5**	4	13	8
6	1	1	2	**6**	2	5	8	**6**	3	10	1	**6**	4	14	6
7	1	2	1	**7**	2	6	6	**7**	3	10	11	**7**	4	15	4
8	1	2	10	**8**	2	7	3	**8**	3	11	8	**8**	4	16	2
9	1	3	8	**9**	2	8	1	**9**	3	12	7	**9**	4	16	11
30	1	4	5	**60**	2	8	11	**90**	3	13	4	**120**	4	17	9
31	1	5	4	**61**	2	9	9	**91**	3	14	2				
2	1	6	1	**2**	2	10	6	**2**	3	14	11				
3	1	6	11	**3**	2	11	5	**3**	3	15	10				
4	1	7	8	**4**	2	12	2	**4**	3	16	7				
5	1	8	7	**5**	2	13	0	**5**	3	17	5				
6	1	9	4	**6**	2	13	9	**6**	3	18	3				
7	1	10	2	**7**	2	14	8	**7**	3	19	1				
8	1	11	0	**8**	2	15	5	**8**	3	19	10				
9	1	11	10	**9**	2	16	3	**9**	4	0	3				
40	1	12	7	**70**	2	17	0	**100**	4	1	6				

ALBERT GALVANOS

Lead-moulded Electros

Three Colour Half-tone
Minimum **10** square inches, per set **13/5**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
11	-	14	9	**41**	- 2	15	0	**71**	- 4	15	3	**101**	- 6	15	6
2	-	16	1	**2**	- 2	16	4	**2**	- 4	16	7	**2**	- 6	16	10
3	-	17	5	**3**	- 2	17	8	**3**	- 4	17	11	**3**	- 6	18	2
4	-	18	9	**4**	- 2	19	1	**4**	- 4	19	4	**4**	- 6	19	7
5	- 1	0	2	**5**	- 3	0	5	**5**	- 5	0	8	**5**	- 7	0	11
6	- 1	1	6	**6**	- 3	1	8	**6**	- 5	2	0	**6**	- 7	2	3
7	- 1	2	10	**7**	- 3	3	1	**7**	- 5	3	4	**7**	- 7	3	7
8	- 1	4	2	**8**	- 3	4	5	**8**	- 5	4	8	**8**	- 7	4	11
9	- 1	5	6	**9**	- 3	5	9	**9**	- 5	6	0	**9**	- 7	6	3
20	- 1	6	10	**50**	- 3	7	1	**80**	- 5	7	4	**110**	- 7	7	7
21	- 1	8	2	**51**	- 3	8	5	**81**	- 5	8	8	**111**	- 7	8	11
2	- 1	9	6	**2**	- 3	9	9	**2**	- 5	10	0	**2**	- 7	10	3
3	- 1	10	10	**3**	- 3	11	1	**3**	- 5	11	4	**3**	- 7	11	7
4	- 1	12	3	**4**	- 3	12	6	**4**	- 5	13	8	**4**	- 7	13	0
5	- 1	13	7	**5**	- 3	13	10	**5**	- 5	14	1	**5**	- 7	14	4
6	- 1	14	11	**6**	- 3	15	2	**6**	- 5	15	5	**6**	- 7	15	8
7	- 1	16	3	**7**	- 3	16	6	**7**	- 5	16	9	**7**	- 7	17	0
8	- 1	17	7	**8**	- 3	17	10	**8**	- 5	18	1	**8**	- 7	18	4
9	- 1	19	11	**9**	- 3	19	2	**9**	- 5	19	5	**9**	- 7	19	8
30	- 2	0	3	**60**	- 4	0	6	**90**	- 6	0	9	**120**	- 8	1	0
31	- 2	1	7	**61**	- 4	1	10	**91**	- 6	2	1				
2	- 2	2	11	**2**	- 4	3	2	**2**	- 6	3	5				
3	- 2	4	3	**3**	- 4	4	6	**3**	- 6	4	9				
4	- 2	5	8	**4**	- 4	5	10	**4**	- 6	6	2				
5	- 2	7	0	**5**	- 4	7	2	**5**	- 6	7	6				
6	- 2	8	4	**6**	- 4	8	7	**6**	- 6	8	10				
7	- 2	9	8	**7**	- 4	9	11	**7**	- 6	10	2				
8	- 2	11	0	**8**	- 4	11	3	**8**	- 6	11	6				
9	- 2	12	4	**9**	- 4	12	7	**9**	- 6	12	10				
40	- 2	13	8	**70**	- 4	13	11	**100**	- 6	14	2				

ALBERT GALVANOS

Lead-moulded Electros

Four Colour Half-tone
Minimum **10** square inches, per set **17/10**

Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.	Sq. ins.	£	s.	d.
11	-	19	6	**41**	- 3	12	8	**71**	- 6	5	11	**101**	- 8	19	1
2	- 1	1	3	**2**	- 3	14	6	**2**	- 6	7	8	**2**	- 9	0	10
3	- 1	3	1	**3**	- 3	16	3	**3**	- 6	9	5	**3**	- 9	2	7
4	- 1	4	10	**4**	- 3	18	0	**4**	- 6	11	2	**4**	- 9	4	5
5	- 1	6	8	**5**	- 3	19	9	**5**	- 6	13	0	**5**	- 9	6	3
6	- 1	8	5	**6**	- 4	1	7	**6**	- 6	14	9	**6**	- 9	7	11
7	- 1	10	2	**7**	- 4	3	4	**7**	- 6	16	6	**7**	- 9	9	8
8	- 1	11	11	**8**	- 4	5	1	**8**	- 6	18	4	**8**	- 9	11	6
9	- 1	13	8	**9**	- 4	6	11	**9**	- 7	0	1	**9**	- 9	13	3
20	- 1	15	6	**50**	- 4	8	8	**80**	- 7	1	10	**110**	- 9	15	0
21	- 1	17	3	**51**	- 4	10	5	**81**	- 7	3	7	**111**	- 9	16	9
2	- 1	19	0	**2**	- 4	12	2	**2**	- 7	5	5	**2**	- 9	18	7
3	- 2	0	9	**3**	- 4	14	0	**3**	- 7	7	2	**3**	10	0	4
4	- 2	2	7	**4**	- 4	15	9	**4**	- 7	8	11	**4**	10	2	1
5	- 2	4	4	**5**	- 4	17	6	**5**	- 7	10	9	**5**	10	3	11
6	- 2	6	1	**6**	- 4	19	4	**6**	- 7	12	6	**6**	10	5	8
7	- 2	7	10	**7**	- 5	1	1	**7**	- 7	14	3	**7**	10	7	5
8	- 2	9	8	**8**	- 5	2	10	**8**	- 7	16	0	**8**	10	9	3
9	- 2	11	5	**9**	- 5	4	7	**9**	- 7	17	9	**9**	10	11	0
30	- 2	13	2	**60**	- 5	6	5	**90**	- 7	19	7	**120**	10	12	9
31	- 2	15	0	**61**	- 5	8	2	**91**	- 8	1	5				
2	- 2	16	9	**2**	- 5	9	11	**2**	- 8	3	1				
3	- 2	18	6	**3**	- 5	11	9	**3**	- 8	4	11				
4	- 3	0	3	**4**	- 5	13	6	**4**	- 8	6	8				
5	- 3	2	1	**5**	- 5	15	3	**5**	- 8	8	5				
6	3	3	10	**6**	- 5	17	0	**6**	- 8	10	3				
7	- 3	5	8	**7**	- 5	18	9	**7**	- 8	12	0				
8	- 3	7	4	**8**	- 6	0	7	**8**	- 8	13	9				
9	- 3	9	2	**9**	- 6	2	4	**9**	- 8	15	6				
40	- 3	10	11	**70**	- 6	4	1	**100**	- 8	17	4				

ALBERT GALVANOS

Lead-moulded Electros

Binders **2/11**
Minimum **6** square inches

Sq. ins.	£	*s.*	*d.*	Sq. ins.	£	*s.*	*d.*	Sq. ins.	£	*s.*	*d.*	Sq. ins.	£	*s.*	*d.*
7	-	3	4	**37**	-	17	9	**67**	- 1	12	1	**97**	- 2	6	6
8	-	3	10	**8**	-	18	3	**8**	- 1	12	7	**8**	- 2	7	0
9	-	4	4	**9**	-	18	8	**9**	- 1	13	1	**9**	- 2	7	5
10	-	4	10	**40**	-	19	2	**70**	- 1	13	7	**100**	- 2	7	11
11	-	5	4	**41**	-	19	8	**71**	- 1	14	0	**101**	- 2	8	5
2	-	5	9	**2**	- 1	0	2	**2**	- 1	14	6	**2**	- 2	8	11
3	-	6	3	**3**	- 1	0	8	**3**	- 1	15	0	**3**	- 2	9	4
4	-	6	9	**4**	- 1	1	1	**4**	- 1	15	6	**4**	- 2	9	10
5	-	7	2	**5**	- 1	1	7	**5**	- 1	15	11	**5**	- 2	10	4
6	-	7	8	**6**	- 1	2	1	**6**	- 1	16	5	**6**	- 2	10	10
7	-	8	2	**7**	- 1	2	6	**7**	- 1	16	11	**7**	- 2	11	3
8	-	8	8	**8**	- 1	3	0	**8**	- 1	17	5	**8**	- 2	11	9
9	-	9	1	**9**	- 1	3	6	**9**	- 1	17	10	**9**	- 2	12	3
20	-	9	7	**50**	- 1	4	0	**80**	- 1	18	4	**110**	- 2	12	9
21	-	10	1	**51**	- 1	4	5	**81**	- 1	18	10	**111**	- 2	13	2
2	-	10	7	**2**	- 1	4	11	**2**	- 1	19	4	**2**	- 2	13	8
3	-	11	0	**3**	- 1	5	5	**3**	- 1	19	9	**3**	- 2	14	2
4	-	11	6	**4**	- 1	5	11	**4**	- 2	0	3	**4**	- 2	14	8
5	-	12	0	**5**	- 1	6	4	**5**	- 2	0	9	**5**	- 2	15	1
6	-	12	6	**6**	- 1	6	10	**6**	- 2	1	3	**6**	- 2	15	7
7	-	12	11	**7**	- 1	7	4	**7**	- 2	1	8	**7**	- 2	16	1
8	-	13	5	**8**	- 1	7	10	**8**	- 2	2	2	**8**	- 2	16	7
9	-	13	11	**9**	- 1	8	3	**9**	- 2	2	8	**9**	- 2	17	0
30	-	14	5	**60**	- 1	8	9	**90**	- 2	3	2	**120**	- 2	17	6
31	-	14	10	**61**	- 1	9	3	**91**	- 2	3	7				
2	-	15	4	**2**	- 1	9	9	**2**	- 2	4	1				
3	-	15	10	**3**	- 1	10	2	**3**	- 2	4	7				
4	-	16	4	**4**	- 1	10	8	**4**	- 2	5	1				
5	-	16	9	**5**	- 1	11	2	**5**	- 2	5	6				
6	-	17	3	**6**	- 1	11	8	**6**	- 2	6	0				

STEREOS

Type and Line Work 1/11
Minimum 8 square inches

NOTE.—Lots of six or more (not exceeding 7 square inches) 1/9 each.

Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.
9	2/1	2/0	**39**	7/1	6/8	**69**	12/2	11/4	**99**	17/2	16/0
10	2/3	2/2	**40**	7/3	6/10	**70**	12/4	11/6	**100**	17/4	16/2
11	2/5	2/3	**41**	7/5	6/11	**71**	12/6	11/8	**101**	17/6	16/4
2	2/7	2/5	**2**	7/7	7/1	**2**	12/8	11/10	**2**	17/8	16/6
3	2/9	2/7	**3**	7/9	7/3	**3**	12/10	11/11	**3**	17/10	16/7
4	2/11	2/9	**4**	7/11	7/5	**4**	13/0	12/1	**4**	18/0	16/9
5	3/1	2/11	**5**	8/1	7/7	**5**	13/2	12/3	**5**	18/2	16/11
6	3/3	3/1	**6**	8/3	7/9	**6**	13/4	12/5	**6**	18/4	17/1
7	3/5	3/3	**7**	8/5	7/11	**7**	13/6	12/7	**7**	18/6	17/3
8	3/7	3/5	**8**	8/8	8/1	**8**	13/8	12/9	**8**	18/8	17/5
9	3/9	3/6	**9**	8/10	8/2	**9**	13/10	12/10	**9**	18/10	17/7
20	3/11	3/8	**50**	9/0	8/4	**80**	14/0	13/0	**110**	19/0	17/9
21	4/1	3/10	**51**	9/2	8/6	**81**	14/2	13/2	**111**	19/2	17/10
2	4/3	4/0	**2**	9/4	8/8	**2**	14/4	13/4	**2**	19/4	18/0
3	4/5	4/2	**3**	9/6	8/10	**3**	14/6	13/6	**3**	19/6	18/2
4	4/7	4/4	**4**	9/8	9/0	**4**	14/8	13/8	**4**	19/8	18/4
5	4/9	4/6	**5**	9/10	9/2	**5**	14/10	13/10	**5**	19/10	18/6
6	4/11	4/8	**6**	10/0	9/3	**6**	15/0	14/0	**6**	20/0	18/8
7	5/1	4/9	**7**	10/2	9/5	**7**	15/2	14/1	**7**	20/2	18/10
8	5/3	4/11	**8**	10/4	9/7	**8**	15/4	14/3	**8**	20/4	18/11
9	5/5	5/1	**9**	10/6	9/9	**9**	15/6	14/5	**9**	20/6	19/1
30	5/7	5/3	**60**	10/8	9/11	**90**	15/8	14/7	**120**	20/8	19/3
31	5/9	5/5	**61**	10/10	10/1	**91**	15/10	14/9			
2	5/11	5/7	**2**	11/0	10/3	**2**	16/0	14/11			
3	6/1	5/9	**3**	11/2	10/5	**3**	16/2	15/1			
4	6/3	5/10	**4**	11/4	10/6	**4**	16/4	15/3			
5	6/5	6/0	**5**	11/6	10/8	**5**	16/6	15/4			
6	6/7	6/2	**6**	11/8	10/10	**6**	16/8	15/6			
7	6/9	6/4	**7**	11/10	11/0	**7**	16/10	15/8			
8	6/11	6/6	**8**	12/0	11/2	**8**	17/0	15/10			

NICKEL-FACED STEREOS

Minimum 8 square inches **2/4**

Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.
9	2/6	2/5	39	8/3	7/9	69	14/0	13/2	99	19/9	18/7
10	2/8	2/7	40	8/5	7/11	70	14/2	13/4	100	19/11	18/9
11	2/11	2/9	41	8/8	8/2	71	14/5	13/6	1	20/2	18/11
2	3/1	2/11	2	8/10	8/4	2	14/7	13/8	2	20/4	19/1
3	3/3	3/1	3	9/0	8/6	3	14/9	13/11	3	20/6	19/3
4	3/6	3/3	4	9/2	8/8	4	14/11	14/1	4	20/8	19/5
5	3/8	3/6	5	9/5	8/10	5	15/2	14/3	5	20/11	19/8
6	3/10	3/8	6	9/7	9/0	6	15/4	14/5	6	21/1	19/10
7	4/0	3/10	7	9/9	9/3	7	15/6	14/7	7	21/3	20/0
8	4/3	4/0	8	10/0	9/5	8	15/9	14/9	8	21/6	20/2
9	4/5	4/2	9	10/2	9/7	9	15/11	15/0	9	21/8	20/4
20	4/7	4/4	50	10/4	9/9	80	16/1	15/2	110	21/10	20/6
21	4/10	4/6	51	10/7	9/11	81	16/4	15/4	111	22/1	20/9
2	5/0	4/9	2	10/9	10/1	2	16/6	15/6	2	22/3	20/11
3	5/2	4/11	3	10/11	10/3	3	16/8	15/8	3	22/5	21/1
4	5/5	5/1	4	11/1	10/6	4	16/10	15/10	4	22/7	21/3
5	5/7	5/3	5	11/4	10/8	5	17/1	16/0	5	22/10	21/5
6	5/9	5/5	6	11/6	10/10	6	17/3	16/3	6	23/0	21/7
7	5/11	5/7	7	11/8	11/0	7	17/5	16/5	7	23/2	21/9
8	6/2	5/10	8	11/11	11/2	8	17/8	16/7	8	23/5	22/0
9	6/4	6/0	9	12/1	11/4	9	17/10	16/9	9	23/7	22/2
30	6/6	6/2	60	12/3	11/7	90	18/0	16/11	120	23/9	22/4
31	6/9	6/4	61	12/6	11/9	91	18/3	17/1			
2	6/11	6/6	2	12/8	11/11	2	18/5	17/4			
3	7/1	6/8	3	12/10	12/1	3	18/7	17/6			
4	7/4	6/11	4	13/0	12/3	4	18/9	17/8			
5	7/6	7/1	5	13/3	12/5	5	19/0	17/10			
6	7/8	7/3	6	13/5	12/8	6	19/2	18/0			
7	7/10	7/5	7	13/7	12/10	7	19/4	18/2			
8	8/1	7/7	8	13/10	13/0	8	19/7	18/5			

NICKEL-FACED STEREOS FOR COLOUR WORK

Minimum 8 square inches
Per colour **2/6**

Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.	Sq. ins.	Mtd.	Unmtd.
9	2/9	2/8	**39**	10/8	10/2	**69**	18/7	17/9	**99**	26/6	25/3
10	3/0	2/11	**40**	10/11	10/5	**70**	18/10	18/0	**100**	26/9	25/6
11	3/3	3/2	**41**	11/2	10/8	**71**	19/1	18/3	**101**	27/0	25/9
2	3/7	3/5	**2**	11/5	10/11	**2**	19/4	18/6	**2**	27/3	26/1
3	3/10	3/8	**3**	11/9	11/2	**3**	19/7	18/9	**3**	27/6	26/4
4	4/1	3/11	**4**	12/0	11/5	**4**	19/11	19/0	**4**	27/10	26/7
5	4/4	4/2	**5**	12/3	11/8	**5**	20/2	19/3	**5**	28/1	26/10
6	4/7	4/5	**6**	12/6	11/11	**6**	20/5	19/6	**6**	28/4	27/1
7	4/10	4/8	**7**	12/9	12/2	**7**	20/8	19/9	**7**	28/7	27/4
8	5/2	4/11	**8**	13/0	12/6	**8**	20/11	20/0	**8**	28/10	27/7
9	5/5	5/2	**9**	13/4	12/9	**9**	21/2	20/3	**9**	29/1	27/10
20	5/8	5/5	**50**	13/7	13/0	**80**	21/6	20/6	**110**	29/4	28/1
21	5/11	5/8	**51**	13/10	13/3	**81**	21/9	20/9	**111**	29/8	28/4
2	6/2	5/11	**2**	14/1	13/6	**2**	22/0	21/0	**2**	29/11	28/7
3	6/5	6/2	**3**	14/4	13/9	**3**	22/3	21/3	**3**	30/2	28/10
4	6/9	6/5	**4**	14/7	14/0	**4**	22/6	21/6	**4**	30/5	29/1
5	7/0	6/8	**5**	14/11	14/3	**5**	22/9	21/9	**5**	30/8	29/4
6	7/3	6/11	**6**	15/2	14/6	**6**	23/1	22/0	**6**	30/11	29/7
7	7/6	7/2	**7**	15/5	14/9	**7**	23/4	22/3	**7**	31/3	29/10
8	7/9	7/5	**8**	15/8	15/0	**8**	23/7	22/6	**8**	31/6	30/1
9	8/0	7/8	**9**	15/11	15/3	**9**	23/10	22/9	**9**	31/9	30/4
30	8/3	7/11	**60**	16/2	15/6	**90**	24/1	23/0	**120**	32/0	30/7
31	8/6	8/2	**61**	16/6	15/9	**91**	24/4	23/3			
2	8/10	8/5	**2**	16/9	16/0	**2**	24/8	23/6			
3	9/1	8/8	**3**	17/0	16/3	**3**	24/11	23/9			
4	9/4	8/11	**4**	17/3	16/6	**4**	25/2	24/0			
5	9/7	9/2	**5**	17/6	16/9	**5**	25/5	24/3			
6	9/10	9/5	**6**	17/9	17/0	**6**	25/8	24/6			
7	10/2	9/8	**7**	18/0	17/3	**7**	25/11	24/9			
8	10/5	9/11	**8**	18/4	17/6	**8**	26/3	25/0			

STEREO MOULDS

Minimum and first 8 square inches of every block **1/11**

Sq. ins.	*s.*	*d.*	Sq. ins.	*s.*	*d.*	Sq. ins.	*s.*	*d.*	Sq. ins.	*s.*	*d.*
9	2	1	**39**	6	5	**69**	10	9	**99**	15	1
10	2	3	**40**	6	6	**70**	10	10	**100**	15	2
11	2	5	**41**	6	9	**71**	11	0	**101**	15	4
2	2	6	**2**	6	10	**2**	11	2	**2**	15	5
3	2	8	**3**	7	0	**3**	11	4	**3**	15	8
4	2	9	**4**	7	1	**4**	11	5	**4**	15	9
5	3	0	**5**	7	4	**5**	11	8	**5**	15	11
6	3	1	**6**	7	5	**6**	11	9	**6**	16	0
7	3	3	**7**	7	7	**7**	11	11	**7**	16	2
8	3	4	**8**	7	8	**8**	12	0	**8**	16	4
9	3	7	**9**	7	10	**9**	12	2	**9**	16	6
20	3	8	**50**	8	0	**80**	12	3	**110**	16	7
21	3	10	**51**	8	2	**81**	12	6	**111**	16	9
2	3	11	**2**	8	3	**2**	12	7	**2**	16	11
3	4	2	**3**	8	5	**3**	12	9	**3**	17	1
4	4	3	**4**	8	6	**4**	12	10	**4**	17	2
5	4	5	**5**	8	9	**5**	13	1	**5**	17	4
6	4	6	**6**	8	11	**6**	13	2	**6**	17	5
7	4	8	**7**	9	0	**7**	13	4	**7**	17	8
8	4	10	**8**	9	1	**8**	13	5	**8**	17	9
9	5	0	**9**	9	4	**9**	13	7	**9**	17	11
30	5	1	**60**	9	5	**90**	13	9	**120**	18	0
31	5	3	**61**	9	7	**91**	13	11			
2	5	5	**2**	9	8	**2**	14	0			
3	5	7	**3**	9	11	**3**	14	2			
4	5	8	**4**	10	0	**4**	14	3			
5	5	10	**5**	10	2	**5**	14	6			
6	5	11	**6**	10	3	**6**	14	7			
7	6	2	**7**	10	5	**7**	14	9			
8	6	3	**8**	10	7	**8**	14	10			

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PRINTING INKS

VARNISH and colour is the basis of all printing ink including black, the varnish being the medium or vehicle in which the pigment is ground. The principal black used for printing ink is Gas Black, which is produced in large quantities in America. Lamp black is made by burning creosote or other oil in a chamber where the quantity of air admitted is restricted to a point which will not allow complete combustion. By this method soot is produced. A good lamp black should be dense and divided into very fine particles free from all oil and mineral matters. Such conditions make it easy to incorporate the black with the varnish or vehicle.

ANILINE COLOURS

Aniline colours are produced in great variety from the bi-products of the process of the distillation of coal. The principal of these are aniline, napthaline, and anthracine; at one time, few of these could be used by the colour makers because of their fugitive character. In recent years, however, much progress has been made by the dye-producing corporations, and many colours are now available.

MAKING DRY COLOURS

To make the dry colours is an extremely complicated process; the general method is to dissolve the dye or dyes in water and precipitate or "strike" them on to a metallic base. The base is frequently varied to suit the dyes employed; the bases commonly in use are aluminium hydrate, barium sulphate, calcium sulphate, silicate of alumina, and zinc oxide. Colours so made still vary very considerably as regard permanence to light, some are quite fast for a long time, even in sunlight, while others are extremely fugitive. The ink maker, however, selects only those aniline colours which are suitable for his particular purpose.

Further uses are made of what may be described as mineral colours such as vermilion, chromes, bronze blue, prussian blue, ultramarine blue, and earth colours which the printer will recognize as siennas and umbers.

MAKING VARNISHES

The subject of varnishes and vehicles is a large and important one, and every printing ink maker finds that it is necessary to carry a wide range of these to meet the many special requirements of the modern printer. The basis of all these may be roughly divided into two classes, under the headings vegetable and mineral. The principal oil used is that made from the seed of the flax plant—linseed oil. The crude oil is extracted by various methods from the seed of the flax plant, after refining it is a pale straw colour and when the operation of refining is carried out correctly the oil should be quite clear. It is generally accepted that this has the required characteristics for the manufacture of printing ink, the property of drying and the power to impart luminosity to the colours, and also to intensify their brightness. Its body also is sufficiently stout for easy manipulation on the printing machine. The viscosity of linseed oil can be increased by extended heating, and this may be carried to a point where the varnish is brought to a hard, rubber-like mass. The stiffest quality usually made for the printing trade is known as extra strong litho varnish. Resin oil is also manufactured for commoner classes of ink, such as news black. This is manufactured by distilling resin.

Mineral oils are also used for the making of certain grades of printing ink. These oils are obtained in a natural state which varies in appearance between petroleum and the heavier lubricating oils. These are refined, and from the range produced the printing ink maker selects a few which are, as already stated, suitable for various classes of inks.

DRYING OF INKS

Printing inks, with the exception of those made for gravure printing, do not dry by evaporation, but by absorbing something which hardens them.

That oil will absorb oxygen has long been known, and in effect it will gradually darken and become solid, which finally hardens off.

Some inks dry very much quicker than others, generally the reason is because the pigments from which they are made are very rich in oxygen, and the oils in which they are ground will absorb the oxygen from the pigments as well as from the atmosphere. The chrome colours, as an instance, are, as a rule, rich in oxygen, while the lake colours will rarely, if ever, harden without some kind of drier added to facilitate the absorption of oxygen.

A cold, moist atmosphere is fatal to the drying of printed work; while a warm, dry air will accelerate the process of oxidization.

QUALITIES INK SHOULD POSSESS

Of the many different types of ink we would instance one—letterpress ink, if this has the right components and is correctly ground it should distribute freely, and have the right consistency or tackiness. It should be suitable for the particular machine and the special demands of the customer. It must dry readily on the paper, but must not do so on the machine. It should work cleanly, should not set-off, pick the surface of the paper, or fill up on the forme. The colour strength should be at a maximum and the amount of varnish at a minimum in accordance with the consistency desired.

PAPER AND INK

As a general rule a hard-sized paper will require a fairly stiff ink; the nature of the paper keeps the ink on the surface. A thin, soft ink would cause set-off and the printing lack sharpness. On work of this description plenty of driers must be used to ensure proper hardening.

Super-calendered, printings, imitation art and machine-finished papers will require a much softer ink. When work has to be handled quickly special drying mediums should be used, which the ink maker will supply, viz.:

"Sinkit,"* a preparation which gives the ink greater penetration.

"Gripit"* will enable an ink to key securely on a repellent paper or surface.

"Winoset"* overcomes the annoyance of set-off.

When printing art papers difficulty is often experienced in overcoming the tendency to pick the surface, but care must be exercised in reducing the ink. The trouble may be caused by the poorness of the coating, a very low temperature, or a little too much "tack" in the ink. It must be recognized that "tack" is essential to a printing ink. Without it the ink would not distribute or lay in a thin film on the forme or slab and would not lift cleanly from the forme and be transferred to the paper. An ink without "tack" becomes a paint, and would leave the surface of the forme and run down the sides.

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* Supplied by B. Winstone & Sons, Ltd., 100 Shoe Lane, London, E.C.4.

To reduce the difficulty of plucking it is far better to resort to the special reducers which the ink maker can supply, e.g. :

"Lipone"* helps distribution.

"Stoptac"* prevents picking, but does not reduce body.

"Eureka Wax Varnish"* will reduce "tack" and stop picking, invaluable for medium priced inks.

SHOWCARDS

When printing showcards or covers, use permanent inks, and if prints are to be subsequently mounted the inks should be alkali resisting. Hundreds of pounds have been lost through omission to observe this danger. When the sheets are mounted the damp paste will cause the alkali in the strawboard or card to attack the colour; blues give the greatest trouble in this respect.

Should the job require varnishing, ascertain the kind of varnish which will be used and inform the ink maker, who will arrange that inks which do not bleed in varnish are supplied.

BRONZE PRINTING

When work requires bronzing there is no question or doubt that the best results are obtained from bronze powders, for some classes of work it is essential to use them. But when the paper or card selected has a good coating, gold inks will give a very satisfactory result. The best of these, such as "Excelsior"† are mixed immediately before use; the powder and special medium being supplied in separate containers. Use well-seasoned rollers and set them finely to a perfectly levelled forme. Do not overload with ink and a good result will be obtained.

COPYING INK

Copying ink is usually ground in glycerine, and has a tendency to dry on the machine. A little glycerine is often necessary to get it to distribute smoothly. Care must be exercised in not getting too much ink on the rollers. Moderately fresh rollers will suit this ink. It must be remembered that composition rollers absorb glycerine, for that reason fresh rollers are better. Special rollers are obtainable for this class of work and are supplied by B. Winstone & Sons, Ltd., 100 Shoe Lane, London, E.C.4.

GLOSS INKS

There is always a certain amount of trouble when using a stiff gloss ink, on account of the liability to dry very rapidly and the difficulty to get a good distribution.

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* Supplied by B. Winstone & Sons, Ltd., 100 Shoe Lane, London, E.C.4.

† Winstone's "Excelsior."

Run the machine slowly, use very firm seasoned rollers. Set inkers finely to the forme, but firm against the riders. Do not forget to wash up if the machine has to stop for any length of time. Failure to observe this latter precaution may cause an accident on the machine.

PRINTERS' DIFFICULTIES

Probably there is not a single printer who has not, at some time or other, had some trouble with the "picking" of printing ink, and who has not done his level best to overcome the difficulty by every means known to him. Very often the fault may be caused by a sudden drop in temperature, which chills the machine, paper, etc., and what is perhaps a bigger factor, it chills the ink. It must be borne in mind that although the trouble is generally experienced with a stiff ink, an ink of any consistency may cause "picking." The thinnest of inks will do this under certain conditions. Then, again, both stiff and thin inks may "pick" for two separate and distinct causes.

The ink may contain what may be called, for the want of a better expression, too much "bite" or "tack," or, in other words, there may be present too stout a varnish, which as the paper travels over the forme in its rapid movement, plucks the surface from it. While it is generally known that too stiff an ink may have a tendency to "pick," it will also be readily understood that an ink may also possess "bite" or "tack" and yet be thin, and it is not so much the consistency of the ink as the amount of "tack" present in it that will cause an ink to "pick."

Printers of periodicals are often expected to produce magazines which are examples of the highest workmanship in a time which is reduced to a minimum, and good quality process black inks are needed which can be backed up in a very short time.

THREE-COLOUR INKS

Much has been written concerning the standardizing of these inks, but the chief difficulty seems to be what constitutes the standard. It is admitted that emerald green and the brilliant ultramarine and magenta blues cannot be obtained from the present commercial set of colours. It is possible that the future may produce a set having these qualities. Meanwhile the printer must get on with his job and endeavour to satisfy his customer with a compromise. Usually, however, two yellows, two blues, and two reds will enable him to get the result of his progressive proofs, providing the plates he is printing together have been proofed in either one of the sets.

The selection would probably be a warm and lemon yellow, crimson and orange red, and warm and green blue. The ink maker will supply these in the sets without any difficulty, or any special shade if desired.

There is a period in between the printing of the yellow and the red, and between the red and the blue, which may be called the critical period. At this stage the ink is just ready to receive the next colour; it must be sufficiently dry or there will be the tendency of the next colour to merge into it and give a dirty appearance, lacking detail, and filling the plate.

When it is too dry the surface is apt to become " glassy " and the next colour will not take. In this connection it is of particular interest to learn that three-colour inks can now be supplied with an adaptability of drying which allows the second and third colours to be printed at intervals of periods varying from two hours to seven days.

COLOUR MATCHING AND MIXING

If work of this nature is to be undertaken successfully it is necessary that all colours should be classified and a careful study made of the properties of each; time and labour can thereby be saved and wastage of material avoided.

A useful classification might be set out as follows :

Reds.—Blue shade; orange shade.
Greens.—Blue shade; yellow shade.
Browns.—Red shade; yellow shade.
Yellows.—Greenish or lemon yellow; normal or medium yellow; warm or deep chrome yellow.
Blues.—Red shade; green shade.
Purples.—Have a predominance of red in them.
Violets.—Have a predominance of blue in them.
Oranges.—Red shade; yellow shade.

TO TONE A COLOUR

To lighten or tone a colour mix opaque white or a transparent medium with it.

To brighten add yellow.
To brighten and warm add orange.
To warm and deepen add red.
To deepen and cool add blue.
To cool and brighten add green.
(*Purples or mauves would not be brightened by treating as above.*)

To sadden or darken use black or a portion of its complementary colour, the latter will sadden and keep the colour cleaner, viz. :

To deepen red add a little green.
To deepen blue add a little scarlet or orange.
To deepen violet add a little primrose.
And *vice versa*.

(See notes on complementary colours on page 138.)

MIXING

The mixing of several colours together should be avoided when matching a shade. Do not use more than three pigments (exclusive of white or black).

It must be remembered that the mixing of yellow, red, and blue in suitable proportions will produce a black or, if the colours are transparent, dark grey.

When several colours are mixed together which include a portion of the three primary colours, the dark grey element is being added which will sadden the resultant mixture.

An illustration may be cited when mixing purple from red and blue. The red must be of a bluish, and the blue of a reddish hue. If an orange red and a green blue were used a dirty plum colour would be produced instead of a clean purple. The yellow in the red and blue completes the trio to form the grey element.

When mixing colours use the lightest colour as the base and add the darker colour very sparingly until the right shade is obtained.

Weigh all ingredients so that a bulk mixing can be accurately computed.

Should it ultimately be found that only a ¼ oz. of the darker colour is necessary for the purpose it should have been in the first instance divided into four parts and each portion added and well mixed before deciding another is necessary.

When mixing colours to which driers are to be subsequently added, it must be remembered that paste driers will slightly darken delicate shades.

Vivid greens, such as verdant or emerald green, cannot be mixed from blue and yellow, such shades are obtained from the green lake colours and the special greens obtainable from the ink maker.

Bright mixings may be obtained as follows :

Colour.	*Mixture.*
Brown	Deep orange and warm blue.
Purple or violet ..	Magenta red and warm blue.
Green	Lemon yellow and green blue.
Orange	Deep yellow and orange red.

TINTS

Tints may be either transparent or opaque, the latter being employed for a base colour, while the former is used when overprinting other colours.

It is usual to employ white for the mixing of the opaque tints and varnish or tinting medium for the transparent kind.

When mixing and using a tint made with either white or tinting medium a little care and thought is necessary. It is not always possible to find the exact strength a tint should be until an impression is taken on the machine, and then only when just sufficient ink is carried to give a clean crisp result. Too much becomes mottled, while a scanty amount will not cover the surface of the paper.

A white ink which is very heavy should not be broken down too much or it will rub when dry. If it is necessary to break down, a little drier will counteract the tendency to rub.

Tints made from white will be slightly lighter when dry.

Employ transparent colours when making transparent tints.

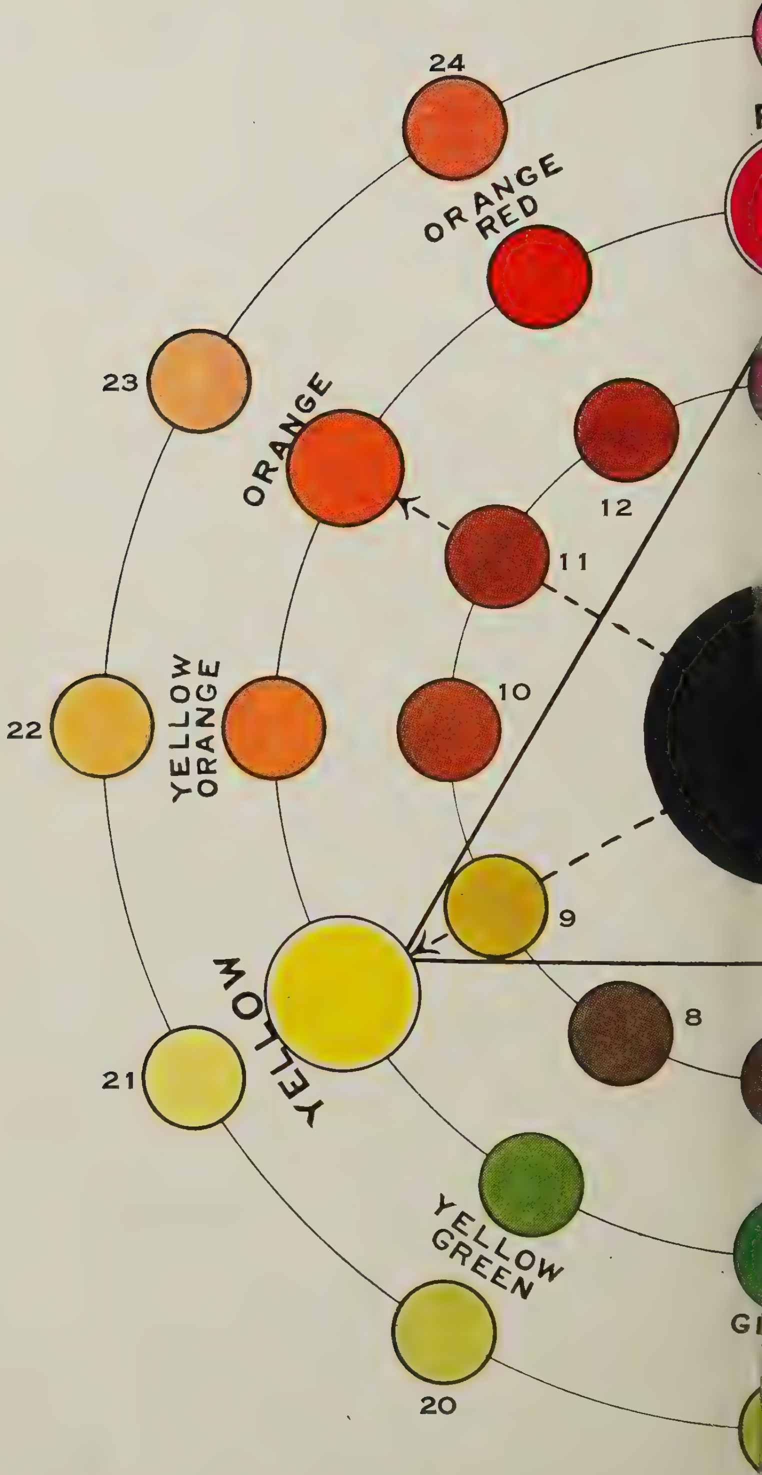
PRIMARY AND COMPLEMENTARY COLOURS

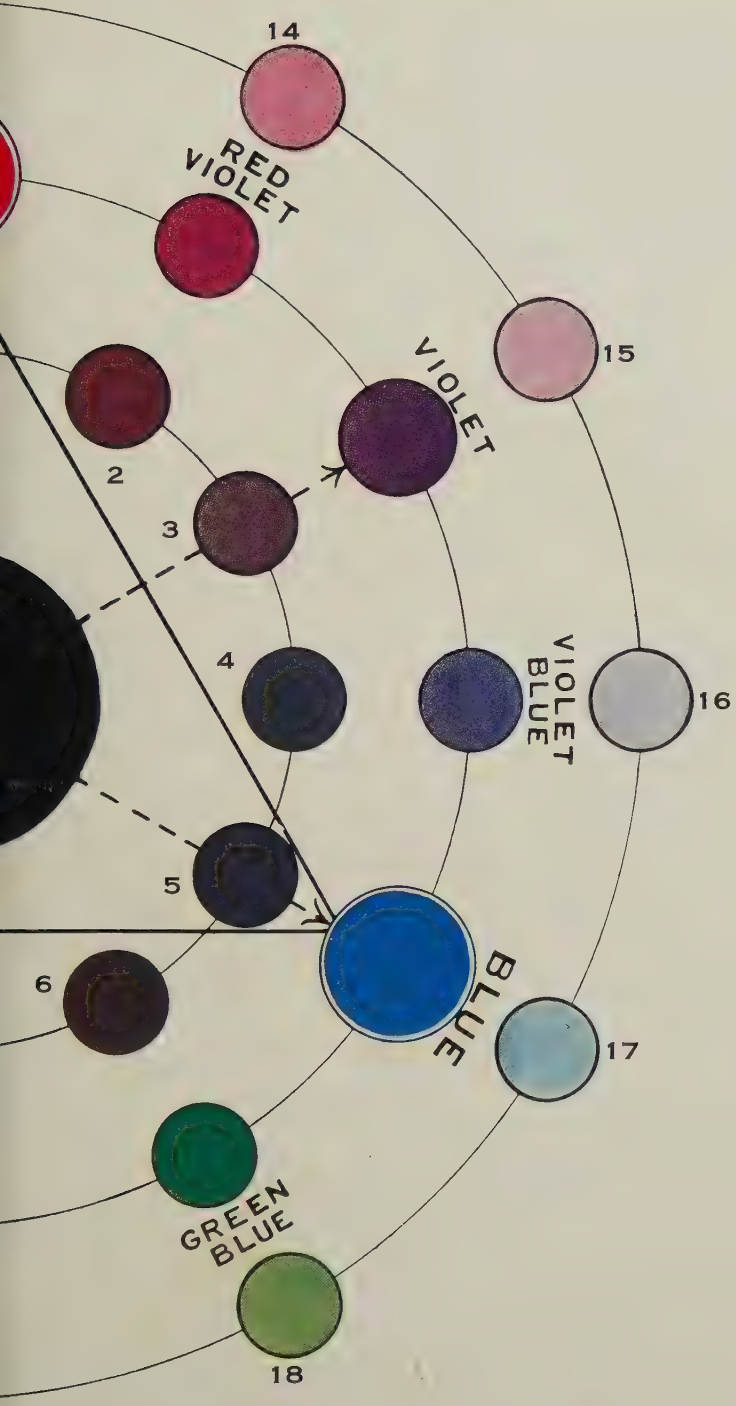
The primary colours are yellow, red, and blue.

The secondary colours are orange, green, and violet.

The tertiary or third formation are russet, olive, and citrine.

When we speak of harmony of contrast we mean a combination of those colours which are the greatest distance from one another. It will not be difficult to conceive that a colour which is most effectively the contrast of another is its complementary. Complementary colours are those which complete the trio of primary hues. Green is the complementary of red because it contains blue and yellow, and therefore completes the trio. Red is the greatest contrast of green because it contains no element of that which enters into the green.


ORANGE RED
ORANGE
YELLOW ORANGE
YELLOW
YELLOW GREEN


RED VIOLET
VIOLET
VIOLET BLUE
BLUE
GREEN BLUE

Yellow is the greatest contrast of violet for the same reason, and blue the greatest contrast to orange in a like manner.

The point may be further illustrated by stating that the complementary of a colour is the one which when added to it will produce a neutral grey or black, e.g., blue and orange, red and green, yellow and violet.

The choice of contrast may be made between the primaries and secondary colours, and the secondary colours may be contrasted with the tertiaries according to whether we require our contrast vivid or subdued, such as red and green, blue and orange, violet and yellow, orange and olive, violet and citrine, russet and green. The most pleasing combinations, however, are obtained from the broken colours as is seen in nearly every decorative colour scheme.

HARMONY OF COLOURS

The harmony of colours is produced by a combination alike in shade or quality, but different in tone : as a full blue and a tint of the same colour.

It may be considered to exist between two colours which lie very closely together in tone such as brown and orange, pink and maroon, azure and navy blue, azure and pure blue, cream and amber.

A rich brown may be saddened with black for the full colour, and reduce with white for the tint, which is an example of harmony of colour. Neutral grey will harmonize with any colour.

THE COLOUR CHART

The colour chart has been designed to show a few of the great number of shades which can be obtained by a mixture of the three primary colours; and further, with the admixture of white, a large range of tints.

The primary yellow, red, and blue are placed equidistant on the centre circle indicated by the points of the triangle. The central colours between any two of them are the secondary colours : orange, green, and violet, which are traced by the dotted line; all these colours are complementary to those on the extreme ends of the dotted lines.

The secondary colours are obtained by mixture of any two primaries, Red and yellow will produce orange; red and blue give a violet; and blue and yellow a green. The colours shown on the chart between a secondary and primary are obtained by mixing one part of each.

To obtain any of the mixings shown in the outers and inners of this diagram the following examples will make the procedure clear :

No. 1.	Seven parts red	One part green.
,, 2.	Seven parts red violet ..	One part yellow green.
,, 3.	Seven parts violet	One part yellow.
,, 4.	Seven parts blue violet ..	One part yellow orange.
,, 5.	Seven parts blue	One part orange.
,, 6.	Seven parts green blue ..	One part orange red.
,, 7.	Seven parts green	One part red.
,, 8	Seven parts yellow green .	One part red violet.
,, 9.	Seven parts yellow	One part violet.
,, 10.	Seven parts yellow orange	One part blue violet.
,, 11.	Seven parts orange	One part blue.
,, 12.	Seven parts orange red ..	One part green blue.

The tints on the outside circle are prepared with the admixture of white as follows :

No. 13.	One part red	Twenty parts white.
„ 14.	One part red violet	Twenty parts white.
„ 15.	One part violet	Twenty parts white.
„ 16.	One part blue violet ..	Twenty parts white.
„ 17.	One part blue	Twenty parts white.
„ 18.	One part green blue ..	Twenty parts white.
„ 19.	One part green	Twenty parts white.
„ 20.	One part yellow green ..	Twenty parts white.
„ 21.	One part yellow	Twenty parts white.
„ 22.	One part yellow orange ...	Twenty parts white.
„ 23.	One part orange	Twenty parts white.
„ 24.	One part orange red ..	Twenty parts white.

The chart has been so arranged that all colours are in perfect harmony of contrast with those directly across the circle.

The colours adjacent on the three circles show the harmony of colour, such as pink, red, and maroon. A little imagination will show the vast number of colour schemes that may be obtained by carrying the idea further. It is not possible in this compendium to give an exhaustive list of its possibilities.

ESTIMATING LETTERPRESS INKS

The following particulars will serve as a useful guide when estimating the amount of ink to be used on prospective work.

We will assume a double demy sheet of eight pages, each page having an area of 96 square inches. The composition of the sheet being one-third half-tones and two-thirds letterpress matter. The work to be printed in black at 3s. 4d. per lb. on a super-calendered paper, the cost would be about 4d. per 1,000 pages or 2s. 8d. per 1,000 sheets.

If the same job were printed on a good art paper it would cost 3¼d. per 1,000 pages or 2s. 2d. per 1,000 sheets, which is slightly less because the even surface of the paper requires less to cover it. Should the same job be required in double tone ink it will take 100 per cent. more ink. The super-calendered paper printed in black you will notice requires ¾ lb. of ink, therefore the double tone would absorb 1½ lb. per 1,000.

If a green or brown were used, allow 1¼ lb. per 1,000 sheets. Reds would take 2¼ to 3 lb. per 1,000. If the job were two-thirds illustrations a further 20 per cent. more ink will be absorbed, and must be allowed on all the preceding figures. We have taken average illustrations for the work, but should they be particularly heavy 10 to 15 per cent. increase must be allowed in the estimate.

ESTIMATING THREE-COLOUR INKS

For the same size sheet, but with eight three-colour plates each having an area of 122 square inches. On super-calendered paper it would cost ⅝d. per inch for the three colours per 1,000 sheets. The 1,000 sheets would consume 4 lb. of yellow, 2 lb. of red, and 4 lb. of blue. Yellow at 4s., red at 7s. 6d., blue at 5s. per lb.

Should a similar job require four colours, it will average ¾d. per square inch per 1,000 sheets. We have taken subjects which are neither very solid or light in appearance. Heavy subjects will easily consume 10 per cent. to 15 per cent. more ink, while comparatively light ones will go through for 10 to 15 per cent. less.

If the colour subjects mentioned above were printed on an art paper a reduction of 10 per cent. can be allowed on the normal prices quoted.

TINTS

A solid tint plate, 20 by 30 = 600 square inches, if it were printed in black 4½ to 5 lb. of ink would be required per 1,000 sheets. Printing the same area with a tint ink, it would consume 8½ to 9 lb. of ink assuming it was made from white, tinting medium and a little colour. A tint composed of white only would take a lb. or so more, while one entirely made from tinting medium would consume about 8 lb. per 1,000. The above quotation is for good poster paper. Art paper would take about 7 per cent. less, while printings and super-calendered would take about 5 per cent. more.

GOLD INK

We are quoting an ink which is mixed just prior to use which can be bought at 10s. per lb.,* which constitutes ½ lb. medium and ½ lb. of powder. If you take a job which is fairly open, with no very large surfaces to cover, it will cost about ⅝d. per square inch. A heavy subject which may have a solid area of 60 square inches or more will cost as much as 1½d. to 2d. per square inch per 1,000 copies.

PHOTOGRAVURE INKS

Instead of printing from a relief surface such as letterpress, photogravure consists of numerous tiny cells of varying depth into which the photogravure ink is forced by suitable mechanism, after which a thin, steel knife cleans the surrounding surface leaving the cells full of ink, which is transferred to paper under pressure.

This ink requires to be soft or "short," it is semi-fluid, and it must dry very rapidly.

MATT AND GLOSS INKS

These inks are made to give a beautiful velvet matt effect or they can be made to give a glossy result. Nearly every shade of colour is manufactured in these volatile inks so that all tastes may be satisfied.

The prices of matt or glossy inks in any shade of colour vary to some extent, and the ink maker should be consulted before submitting the quotation.

COLOUR GRAVURE

Considerable progress has been made with three-colour gravure, and the exacting demands of the process engraver have been successfully met by the ink maker.

It is important that the printer and the printing ink maker should be in close touch with each other.

* Winstone's "Excelsior."

ESTIMATING PHOTOGRAVURE INKS

Estimating ink for photogravure is always difficult because of the uncertainty and lack of control in the depth of etching. The average etching is about two and a half thousandths deep, but through a variety of causes it may easily be exceeded, which would increase the cost by 5 per cent. For a similar reason it may come less in depth and reduce the cost by a like amount.

A careful record has been kept over a long period, which makes the following figures very reliable.

The average run was for 20,000, while the illustrations were three-quarters of the area, the remaining quarter being type matter. There can be no variation in the amount of ink consumed by adopting different papers, it is, of course, regulated by the depth of the etching. We have classified our illustrations as heavy, by which we mean solid dark grounds, medium which constitutes landscapes and similar work, light subjects may be compared with seascapes, etc.

Area.	*Heavy.*	*Medium.*	*Light.*	*Copies.*
48 sq. in.	14 oz.	9½ oz.	7 oz.	1,000

Any size sheet can be based on the above table, but if the run is only 500 or 1,000 a minimum of 1 lb. should be estimated for 48 square inches.

The question of the amount of ink consumed with different colours does not arise so much in photogravure because most inks are of similar bulk. They do, of course, vary in the price per lb.

It must be pointed out that a photogravure ink trough is very large and a considerable quantity of ink (about 14 lb.) is necessary to get a good flow on the rollers, but as there is little or no waste, this is not a serious item, because all ink not used is returned to the ink drum which is strained through a copper gauze before being used again.

ESTIMATING COLOUR GRAVURE INKS

Now that some progress has been made with this most interesting and beautiful process, it is possible to give reliable data for the estimating department.

We have generally found there is little difference in the quantity of ink used on each cylinder. The following table may be safely taken for all practical purposes :

Size.	*Heavy.*	*Medium.*	*Light.*	*Copies.*
48 sq. in.	Yellow, 1 lb. 1 oz.	13½ oz.	10½ oz.	1,000
,,	Red, 1 lb. 1 oz.	13½ oz.	10½ oz.	,,
,,	Blue, 1 lb. 1 oz.	13½ oz.	10½ oz.	,,

PAPER

A GOOD general knowledge of paper is of considerable value to the buyer of printing. A study of paper is one of the most important parts of a printer's business, because the selection of paper to suit a particular job calls for experience in handling both the finished work and the plain paper. Judging paper as being equal to patterns or samples and forming an opinion of comparative values is only to be gained by long experience. No general rule can be laid down which will enable the buyer or user to speed along the royal road. A few helpful hints, however, may guide him on his way.

Of the many varieties of paper it would be of some assistance to reduce these into simple groups, viz., antiques, cartridges or rough surface papers, news, printings or machine finished, super-calendered, litho, writings, imitation art, art or coated, M.G. or rough back, and covers. The paper makers will be pleased to supply packet samples of these papers, and in a few hours one would soon get a good idea of the meaning of the above varieties by comparison.

For the better class of illustrated catalogue and magazine work, art or coated paper is generally used, but when price will not permit of this, either a super-calendered or imitation art is selected; and, as these two stocks can be obtained in various grades, the cost of them can generally be adapted to suit the work. When for posting purposes it is necessary to keep the weight of the finished product down, it is desirable to take into consideration when selecting the paper for the work in hand the fact that art papers, being coated, are considerably heavier, bulk for bulk, as compared with super-calendered and imitation art papers.

It is of importance to be able to gauge the weight of a paper by feel. This knowledge may be acquired by first deciding on a particular size, say double crown (20 in. by 30 in.), of a known weight; perhaps 50 lb. would be as easy to remember as any. When comparing substance always get the " feel " of the sample 50 lb. double crown, and in this way it is astonishing how soon the weight of paper may be judged by handling.

The best grades of imitation art and the lower grades of art paper run so close in appearance that it is very difficult for the novice to detect without a test. A silver coin drawn across the paper will reveal the art paper, on which a black pencil-like line will appear. The imitation will only show a feint line. Another test is to crumple the paper, when the chalk dust of the coated paper will appear on the surface.

Art papers vary in quality, and some for a variety of reasons may have an inferior surface. To test for a good coating, moisten the finger slightly and press on the surface for a moment or two; if no coating is lifted, the stock may be considered very good and not liable to lift in printing.

The main difficulties which occasion the printer some anxious times in the use of paper arise from stretching, cockling, creasing, from the surface picking or lifting, the paper being out of square, electricity being present in the paper, loose particles coming away in the form of fluff, and lumps of some foreign substance, which are usually very hard and cause considerable damage. To the above must be added the difficulty of getting colour to dry on some papers and in obtaining a solid impression on others.

The expansion or stretching of paper is very serious when register work in colour is undertaken. The atmosphere contains moisture, the amount varies almost hourly, and paper is most susceptible to these changes. Well-matured paper is considered to contain 7 per cent. of moisture; should the atmosphere contain more, the paper will readily absorb the extra moisture and expand. If, on the other hand, the atmosphere contains less, the paper will part with moisture and shrink. This propensity suggests that paper must be matured and kept in that state. Paper warehouses and machine rooms must be kept to an identical temperature and humidity. If the latter is too costly, a constant temperature must be maintained, when it will be found that stretching, cockling, creasing, and picking will be reduced to a minimum.

Static electricity is always a difficult condition to combat. Maturing and storage will usually remove most of it, but where this is not possible it must be earthed. As the sheet is travelling through the machine, stretch a copper wire across just above the sheet of paper, and connect to the framework of the machine. Then attach short pieces of thin, feathery copper wire to it so as to just skim the paper, which will carry away the electricity. It must be remembered that should the sheet receive further friction on its passage through the machine, the trouble may re-occur, and the above arrangement will have to be carried out a second or even a third time.

Paper being out of square is always a fruitful source of waste. In label work, where the margins are very narrow, the paper must be trimmed perfectly square before printing. This applies to all work where the margins are small. Three-colour printing demands a square sheet and a flat one. The squaring of the paper for this work eliminates the drying edge, which is usually cockled.

Featherweight papers are very prone to fluff; they are made for bulk, hence the trouble. Very little size is used and the fibre is beaten very fine; the surface of the paper is very loose in consequence. To print well on this class of paper requires very careful make-ready, which must have a firm, but not a heavy, impression. Fresh rollers carefully adjusted, but not too hard, on the forme are best, while a soft ink must be used.

All hard-sized papers require extra driers added to the inks, because nearly all the ink dries on the surface of the paper.

Good book work should have all papers cut from the web or reel for the last fold of the sheet to come in the machine direction. Attention to this little detail ensures the pages opening flat, and on thick papers an absence of cracking in the fold. Cover papers should, for the same reason, be cut for the fold to come in the machine direction. The cracking of cover papers is much aggravated when the text is unusually bulky, because a series of breaks will develop around the back of the fold. This is almost entirely eliminated if the paper is cut as suggested.

Some coated papers take ink readily and retain the fullness of colour, while others will show a mottled appearance. This latter fault is usually caused through the body paper being too absorbent. Imitation art paper may show the same defect for the same reason. The only remedy, if the stock must be used. is a full-bodied ink of good density and to carry a little more ink than is usual. There will be a risk of set-off, which must be closely watched.

Business houses should take some pains in the selection of the paper for their stationery. The letter paper should be of good quality and handle well. When it is remembered that the primary object of this selection is to create a good impression, the time and care bestowed on it will surely bring its own reward.

The wonderful range of cover papers which the enterprising manufacturers have placed on the market enable the printer and advertising agents to select covers for booklets and brochures which are both attractive and compelling. A wise choice in this direction becomes profitable to both printer and client.

Only the fringe of this absorbing subject can be dealt with in this compendium, but to cover as wide an area as possible, we are including an alphabetical list of paper terms, which may prove instructive and of value to both the buyer and printer.

PAPER TERMS

ACCOUNT BOOK.—Usually Azure Laid for bound ledgers, but Azure and Cream Wove for loose-leaf ledgers. The better qualities of paper are tub sized, air dried, and contain a good percentage of rag.

AIR DRIED.—A term applied to papers which have been tub-sized and are air dried by passing over skeleton drums.

AIR PROOF.—Grease proof.

ANGLE.—Used for the manufacture of envelopes and cut angle shape instead of oblong. This obviates waste when cutting out.

ANTIQUE.—Bulky paper, often fluffy, used for book work and publications.

ART.—Arts, Enamels, Chromos, etc.—a coating of chalk is applied to the body of the paper for printing fine half-tones.

A. & B.B.—Degrees of roughness in the finish of superfine Drawing papers :

H.P.—Hot pressed or glazed.

Not.—Not glazed.

B.—Rough.

B.B.—Double rough.

B.B.—Applied to Note-papers denotes black bordered.

BAG BROWN.—Brown paper used for the manufacture of bags.

BANK.—This term is now applied to any very th[illegible]gn writing paper, Large Post, 19 to 31 lb. per 1,000 sh[illegible]

BANK-NOTE.—One of the best papers, made generally of rag, new unbleached linen—usually hand-made.

BIBLE PAPER.—A thin opaque paper manufactured for Bibles, Hymnals, and other purposes where minimum bulk is required.

BLOTTING.—A paper manufactured without any sizing agent. The best grades are made entirely from rag; the cheaper grades from wood and esparto.

BOARDS.—The standard sizes are :

Royal ..	.. 25 × 20 ins.	Imperial ..	30 × 22 ins.
Double Elephant	40 × 27 ,,	Atlas.. ..	34 × 27 ,,

Post Card size .. .. 28½ × 22½ ins.

BODY PAPER.—Term applied to the base paper of Arts, Chromos and Enamel or other composite papers.

BOND.—A tough machine-made quality of Writing Paper, slightly thicker than "Bank." It is usually sold in Large Post, 31 to 44 lb. per 1,000 sheets.

BRIEF.—Foolscap ruled in watermark, or on surface with a marginal line, and either thirty-six or forty-two transverse lines.

Bristol Board.—A fine quality of board, said to have been made first at Bristol. It is usually composed of two or more sheets pasted together according to substance.

Browns.—Usually sold with glazed or unglazed finish in the following sizes—used for wrappings.

Imperial	29 × 22½ ins.	Double Imperial	29 × 45 ins.
Casing ..	36 × 46 ins.		

Broke.—An inferior quality to retree.

Bulk.—To test thickness of books measure front and bottom edges with gauge. For approximately testing single sheets, an efficient pocket micrometer may be obtained.

Butter Papers.—Usually vegetable parchment or its substitute, imitation parchment.

Carbon Papers.—A specially prepared paper for carbon and copy work. It is a thin paper coated with a preparation of mineral colours and fatty substance.

Cartridges.—A strong, tough paper with a rough finish used for drawing purposes, envelope making, and offset printing.

It is interesting to note that during the Peninsular War of 1807, Mr. John Dickinson produced a Cartridge paper which was vastly superior to the old type, which was so unsatisfactory because of the smouldering which caused accidental explosions.

Chemical Wood.—Wood reduced to a pulp by a chemical process. *See* Mechanical and Sulphite.

Cheque.—A specially prepared paper treated chemically to betray any alteration made.

Chromo.—A paper [illegible]vily coated than an Art, and possesses a better printing surface.

Cloth Lined.—The centre is made of linen or canvas. Made to withstand wear, and used by map makers, toy-book printers, etc.

Collotype.—A firm, hard paper made to withstand the damp surface of the gelatine plate used in printing.

Copying.—A thin, strong unsized paper used for copy letter work. Since the introduction of the typewriter the demand for this paper has considerably lessened, but it is still used in the legal profession.

Coated.—Any paper surfaced with a composition used to surface Art, Chromo, or Enamelled papers.

Cockling.—A defect due to packing too tightly whilst immature, or to too rapid drying. It may be generally overcome by hanging in a uniform temperature, or by uncording and stacking. Wood papers very liable to this.

Corrugated.—Two thin sheets strawboard, one pasted in corrugated fashion to a flat sheet usually used for protecting parcels, bottles, etc., etc.

Cover.—A thick paper used for the covers of catalogues, and advertising literature. Usually stocked in a wide range of colours and finishes. Under this heading Dickinson's Cordelia Cover is worthy of mention.

Crayon.—A rough finished paper usually tinted. Used for drawing purposes.

Cream.—Applied loosely to all white or creamy Writing Papers, whether laid or wove.

Dandy Roll.—The name given to the roll which imparts the watermark in paper.

There are three different types : Wove, Laid, and Spiral Laid.

The Wove consists of a plain wire mesh closely woven, and gives a woven appearance in paper.

The Laid roll has a series of wires running parallel across the dandy, and gives the well-known Laid effect in papers.

The Spiral Laid roll consists of wires running at equal distances round the roll. Spiral Laid papers are particularly noticeable for the Laid mark on the underside of the paper.

On any of these rolls additional designs and lettering may be added, such as customer's trade-marks, etc.

Deckle Edge.—The feathery edge occurring round the borders of a sheet of hand-made or mould-made paper, due to the deckle or frame of the mould.

Deckle Edged.—Papers which still retain the feathery edge caused by the deckle straps in the course of manufacture.

Drying Royal.—A rough finished and absorbent white paper. It is made generally in Royal (20 by 25) in 93 lb. per 1,000 sheets; also for programme purposes, which is tinted. Large Post, 73 lb. per 1,000 sheets.

Duplex.—Papers possessing two different coloured surfaces. These are obtained :

1. By coating.
2. By spraying a surface colour on the one side.
3. By running two webs simultaneously through heavy rollers at the end of the paper-making machine to produce one sheet.

Duplicators.—Papers specially sized to absorb just sufficient ink from duplicating machines to give clear reproduction without set-off.

Embossed.—Papers possessing a raised design, embossed by means of chased rolls or plates.

Engine Sized.—This means the sizing agents, rosin and alum, are added to the papers in the heating engine—*see* Tub-Sized.

Envelope.—Usually cut angle shape and made as opaque as possible.

ESPARTO.—A coarse grass imported from Southern Spain and Northern Africa, employed principally by English and Scotch paper makers. Papers made from this material possess—good bulk, pleasing handle, and velvety feel. Used for printing papers and Engine Sized Writings.

FEATHERWEIGHT.—Manufactured from esparto. Very loosely woven so as to give the maximum bulk. Made in Antique Wove for publishers. The bulkiest are entirely unloaded.

FINISH.—The amount of gloss on the surface of the paper is usually termed "Finish." To printing papers, the following expressions are applied :—

Antique—Rough antique.

Smooth Antique—An antique slightly finished.

Low Machine Finish is the smooth surface of an average printing paper.

High Machine Finish is intermediate and between the preceding and Super-Calendered, from which it is sometimes hardly distinguishable.

Super-Calendered—Highly glazed by means of a stack of cylinders called "Calenders."

Imitation Art—Water finished and heavy finished.

To writing and drawing papers the terms applied are :

Vellum—Smooth and Vellum like.

B.—Rough.

B.B.—Double rough.

Not—Unglazed.

H.P.—Hot pressed. Glazed by pressure between plates.

Friction glazed—Burnished by beeswaxed calenders of different diameters revolving at different speeds.

Matt—Medium rough (applied to plate and photographic papers).

P.G.—Plate glazed—highly surfaced sheet by sheet by pressure between zinc plates.

FLINT.—Papers possessing an extra fine finish. This is obtained by the friction of a stone moving quickly to and fro on the surface of the paper as it comes through the calenders. It is usually coated.

FOIL.—Decorative wrapper paper coated with gold, silver, tin, copper, or zinc in the form of powder, the paper first having an adhesive coating.

GREASEPROOF.—Thin paper, specially treated to resist grease. Used for wrapping food-stuffs, etc.

GROCERY.—A term applied to the many grades of paper used by the grocery trade.

GLASSINE.—A transparent paper used for wrapping paper, manifold books, and jackets for protecting book covers.

HAND-MADE.—So called because the vat-man dipped a mould into the vat containing rag fibres and took out sufficient to form a sheet of paper; peculiar shake is required to interlace the fibres together, and it required considerable experience and practice to take up sufficient pulp to make the required substance.

IMITATION ARTS.—Printing papers which have been heavily loaded and highly calendered to obtain the highest possible finish to imitate an Art paper. The distinction between Art and Imitation Art is that in the former case the clay is spread over the surface, in the other it is mixed with the fibre.

IMITATION PARCHMENT.—A strong transparent wood pulp paper. Beaten to a state of greasiness and almost waterproof.

INDIA.—A strong, thin opaque paper made for Bible work.

INSIDES.—This term is applied to the eighteen inside quires of a ream of Writing or Drawing Paper, the top and bottom quire being considered outsides. A ream "Insides" has had its outsides removed and insides added to make a total of 480 sheets.

IVORY BOARDS.—Superfine Paste and Pulp Boards, highly finished.

JAPANESE VELLUM.—Originally made in Japan from the inner bark of the mulberry tree. Now substitutes may be obtained in England, usually made from wood, and beaten until the pulp is greasy and almost waterproof.

KRAFT.—Brown paper made from a special grade of wood pulp to give maximum strength.

LAID.—The ribbed appearance in writing and printing papers, due to manufacture on a mould, or by a dandy on which the wires are laid side by side instead of being wove transversely.

LEATHER BOARDS.—A thick board manufactured from leather clippings and other raw material.

LEDGER PAPERS.—*See* ACCOUNT BOOK PAPERS.

LITHO.—A high machine-finished paper, usually Esparto, made on the machine the narrow way of the sheet. After manufacture, the paper is allowed to cool thoroughly, and it is then super-calendered twice to produce flatness. CROXLEY LITHO PAPERS receive an additional process which ensures perfect register.

LOAN.—A tub-sized, rag paper made for Bank-notes, Bonds, etc. It is thicker and stronger than an ordinary bank.

MAGAZINE.—Divided into two classes—Antique finish for type and line block work; Super-calendered for printing half-tones.

MACHINE GLAZED.—Generally used for poster work. Possesses a smooth surface for printing and a rough under side which adheres firmly to hoardings. Made in white and tints. Also used for wrappings, etc. Often sold under the heading of M.G. Poster.

MANIFOLD.—Slightly waxed tissue or other thin interleaving paper made for employment with carbon paper. Also an extremely thin typewriting made for the multiplication of as many as ten or twelve carbon copies of typewritten letters.

MANILLA.—A superfine tough quality of wrapping and label paper made from Manilla hemp. The term is now loosely applied to cheap imitations made from wood pulp. Used for wrapping, tag tickets, etc.

MILL BOARD.—A thick board manufactured from wood-pulp fibre refuse and other cheap materials.

MAP PAPERS.—A fine litho paper made to print fine detail in colours without stretching. This paper is mounted on linen after printing. The cheaper grade is made from wood-pulp and highly glazed suitable for one colour work, which is folded up for guide books.

MATURE.—Newly made papers have sometimes a tendency to (*a*) fluff; (*b*) cockle; and (*c*) stretch. There is also a possibility that the electricity generated by the friction of manufacture may cause sheets to adhere to each other and thus create trouble to the printer. Many papers are greatly improved by being kept in stock for a considerable period before use. They are then termed mature. Croxley has a maturing process which enables paper to be printed without hanging or maturing.

MECHANICAL WOOD.—The lowest grade of wood pulp prepared by the purely mechanical process of grinding. In contrast to this cheap method, Sulphite and Sulphate wood is digested by means of chemicals, the process of digestion evaporating about 65 per cent. of the original bulk.

MUSIC.—An opaque litho paper used for music printing; fine register is essential. The small music characters can only be perfectly reproduced on paper that is carefully made. It should be a good solid sheet with sufficient backbone to stand up on a piano.

NEWS.—The lowest grade of printing paper made from mechanical wood.

NON-CURLING GUMMED PAPERS.—After gumming this paper is treated so that the volume of gum is cracked and broken; the paper will lie perfectly flat.

ONION SKIN.—Highly glazed transparent paper, usually imitation Parchment. A term expressive of its appearance.

OPACITY.—A desirable characteristic in thin papers. It is attained by special treatment and material. Toned and Creamy papers are less transparent than those of a bright white colour.

PARCHMENT.—Originally meant the skin of a goat or sheep treated for writing upon. Now the term is loosely applied to fibrous imitations.

Paste Boards.—Made up of one or two layers of pulp boards pasted together; sometimes the middle is lined on both sides with white and tinted lining paper.

Photogravure.—The paper best suited for this work is an absorbent plate paper, but the process is capable of giving good results on almost any paper.

Plate Paper.—A superfine soft rag paper, thick substance, made for steel plate printing.

Poster.—Applied to the cheaper qualities of papers made for poster work. The chief varieties are M.G. and M.G. Litho.

Press Boards.—Tough and highly glazed boards, manufactured from leather refuse, used by printers for flattening printed sheets.

Printings.—This term covers M.F. Super-calendered, Imitation Arts, Lithos, Antiques, and almost every form of paper which can be printed upon.

Railway Buffs.—A buff-coloured weigh-bill used by the Railway Companies.

Retree.—This term, which is corrupted from the French "retire" (withdrawn) is used to designate sheets which are slightly defective. They are thrown out by sorters, and invoiced at 10 per cent. less than good. It is customary for the buyer to accept a reasonable proportion of retree (say 10 per cent. to 15 per cent.). Retree is indicated by two crosses (XX) or by the letter R. As a rule its defects are so trifling as (especially when printed) to escape notice. The seriously defective sheets are termed Broke, a quality indicated by three crosses (XXX) and invoiced at 20 per cent. less than good.

Silurian.—A mottled paper made by adding dark-coloured rag or other material to white pulp.

Strawboard.—Manufactured from crude straw pulp, and used for packing purposes.

Super-calendered.—Printing papers that are glazed after manufacture, being passed through a steam bath and then subjected to pressure under hot rolls.

Tissues.—Thin papers used for copying, interleaving, wrapping, etc.

Paper Trade Customs.—Codified and adopted by the Paper Makers' Association of Great Britain and Ireland (Incorporated), the National Association of Wholesale Stationers and Paper Merchants, the Envelope Makers' and Manufacturing Stationers' Association, and the Employers' Federation of Envelope Makers and Manufacturing Stationers, and the United Kingdom Paper Bag Manufacturers' Association (now The British Paper Bag Federation).

Machine-made Writings, Printings, etc.—A ream contains 500 sheets. Reams are graded as " Good," " Retree," and " Broke."

" Retree " is subject to 10 per cent. reduction.

" Broke " is subject to 20 per cent. reduction.

All fine papers under 15 lb. large post 500's shall be classed as " Bank."

Wrappers.—The chargeable weight shall include weight of necessary ream and reel wrappers (not bale wrappers), string and centres (excepting those of wood or metal).

Special Makings.—For makings of Groups " A," " B," and " C " of special size, substance, tint, water-mark, etc., an order shall be deemed to be properly filled if the quantity supplied is within the following limits either way of the quantity ordered :

One ton or less, 12½ per cent.

Above 1 ton and not exceeding 5 tons, 7½ per cent. Above 5 tons, 5 per cent. (not applicable to hand and mould mades).

Any excess beyond such limits shall be cut down to the nearest standard size and taken by the buyer at the proportionate price of such size.

TRANSFER.—Chemically prepared paper for transferring designs to the litho stones.

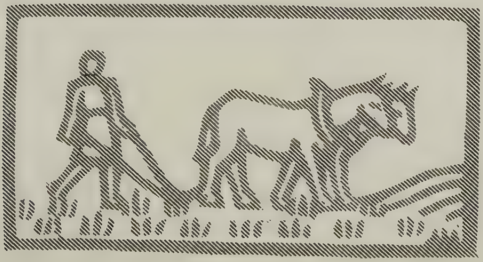
TRIPLEX.—A board consisting of three layers running together on one machine.

TUB-SIZED.—After the paper has been made it is passed through a bath of gelatine which thoroughly permeates the fibres and gives additional "life" and "snap" to the paper.

TYPEWRITING.—Generally speaking this is a 10 × 8 ins. or 13 × 8 ins. Bank paper. This term covers a wide range of papers.

TYPEWRITINGS.—A comprehensive term covering any writing paper, Laid or Wove, specially prepared to use in a typewriter.

VARNISHING.—A hard, closely made, super-calendered paper suitable for label printing and subsequent varnishing.



SUBDIVISIONS OF PAPERS

PRINTING PAPERS

Name.	Sq.Ins.	Size in Ins.	Folio.	4to.	Long 4to.	6to.	Long 6to.	8vo.
Imperial ..	660	22 × 30	15 × 22	11 × 15	7½ × 22	10 × 11	7⅓ × 15	7½ × 11
Large Royal	540	20 × 27	13½ × 20	10 × 13½	6¾ × 20	9 × 10	6⅔ × 13½	6¾ × 10
Royal	500	20 × 25	12½ × 20	10 × 12½	6¼ × 20	8⅓ × 10	6⅔ × 12½	6¼ × 10
Medium ..	414	18 × 23	11½ × 18	9 × 11½	5¾ × 18	7⅔ × 9	6 × 11½	5¾ × 9
Demy ..	393¾	17½ × 22½	11¼ × 17½	8¾ × 11¼	5⅝ × 17½	7½ × 8¾	$5^5/_6$ × 11¼	5⅝ × 8¾
Crown ..	300	15 × 20	10 × 15	7½ × 10	5 × 15	6⅔ × 7½	5 × 10	5 × 7½
Large Fooslcap	229½	13½ × 17	8½ × 13½	6¾ × 8½	4¼ × 13½	5⅔ × 6¾	4½ × 8½	4¼ × 6¾

Name.	Sq.Ins.	Long 8vo.	9mo.	12mo.	Long 12mo.	16mo.	24mo.	32mo.
Imperial ..	660	5½ × 15	7⅓ × 10	7⅓ × 7½	5½ × 10	5½ × 7½	5 × 5½	3¾ × 5½
Large Royal ..	540	5 × 13½	6⅔ × 9	6⅔ × 6¾	5 × 9	5 × 6¾	4½ × 5	3⅜ × 5
Royal	500	5 × 12½	6⅔ × 8⅓	6¼ × 6⅔	5 × 8⅓	5 × 6¼	4⅙ × 5	3⅛ × 5
Medium ..	414	4½ × 11½	6 × 7⅔	5¾ × 6	4½ × 7⅔	4½ × 5¾	$3^5/_6$ × 4½	2⅞ × 4½
Demy ..	393¾	4⅜ × 11¼	$5^5/_6$ × 7½	5⅝ × $5^5/_6$	4⅜ × 7½	4⅜ × 5⅝	3¾ × 4⅜	$2\frac{13}{16}$ × 4⅜
Crown ..	300	3¾ × 10	5 × 6⅔	5 × 5	3¾ × 6⅔	3¾ × 5	3⅓ × 5¾	2½ × 3¾
Large Foolscap	229½	3⅜ × 8½	4½ × 5⅔	4¼ × 4½	3⅜ × 5⅔	3⅜ × 4¼	$2^5/_6$ × 3⅜	2⅛ × 3⅜

WRITING PAPERS

Name.	Sq.Ins.	Size in Ins.	Folio.	4to.	Long 4to.	6to.	Long 6to	8vo.
Super Royal	513	19 × 27	13½ × 19	9½ × 13½	6¾ × 19	9 × 9½	6⅓ × 13½	6¾ × 9½
Small Royal ..	456	19 × 24	12 × 19	9½ × 12	6 × 19	8 × 9½	6⅓ × 12	6 × 9½
Small Medium	385	17½ × 22	11 × 17½	8¾ × 11	5½ × 17½	7⅓ × 8¾	$5^5/_6$ × 11	5½ × 8¾
Small Demy ..	310	15½ × 20	10 × 15½	7¾ × 10	5 × 15½	6⅔ × 7¾	5⅙ × 10	5 × 7¾
Sheet and ½ Cap	$327\frac{15}{16}$	13¼ × 24¾	12⅜ × 13¼	6⅝ × 12⅜	$6\frac{3}{16}$ × 13¼	6⅝ × 8¼	$4^5/_{12}$ × 12⅜	$6\frac{3}{16}$ × 6⅝
Sheet and ⅓ Cap	291⅛	13¼ × 22	11 × 13¼	6⅝ × 11	5½ × 13¼	6⅝ × 7⅓	$4^5/_{12}$ × 11	5½ × 6⅝
Small Post ..	268¼	14½ × 18½	9¼ × 14½	7¼ × 9¼	4⅝ × 14½	6⅙ × 7¼	$4^5/_6$ × 9¼	4⅝ × 7¼
Foolscap ..	218⅝	13¼ × 16½	8¼ × 13¼	6⅝ × 8¼	4⅛ × 13¼	5½ × 6⅝	$4^5/_{12}$ × 8¼	4⅛ × 6⅝
Large Post ..	346½	16½ × 21	10½ × 16½	8¼ × 10½	5¼ × 16½	7 × 8¼	5½ × 10½	5¼ × 8¼

Name.	Sq.Ins.	Long 8vo.	9mo.	12mo.	16mo.	24mo.	32mo.
Super Royal	513	4¾ × 13½	6⅓ × 9	6⅓ × 6¾	4¾ × 6¾	4½ × 4¾	3⅜ × 4¾
Small Royal ..	456	4¾ × 12	6⅓ × 8	6 × 6⅓	4¾ × 6	4 × 4¾	3 × 4¾
Small Medium	385	4⅜ × 11	$5^5/_6$ × 7⅓	5½ × $5^5/_6$	4⅜ × 5½	3⅔ × 4⅜	2¾ × 4⅜
Small Demy ..	310	3⅞ × 10	5⅙ × 6⅔	5 × 5⅙	3⅞ × 5	3⅓ × 3⅞	2½ × 3⅞
Sheet and ½ Cap	$327\frac{15}{16}$	$3\frac{5}{16}$ × 12⅜	$4^5/_{12}$ × 8¼	$4^5/_{12}$ × $6\frac{3}{16}$	$3\frac{5}{16}$ × $6\frac{3}{16}$	$3\frac{5}{16}$ × 4⅛	$3\frac{3}{32}$ × $3\frac{5}{16}$
Sheet and ⅓ Cap	291⅛	$3\frac{5}{16}$ × 11	$4^5/_{12}$ × 7⅓	$4^5/_{12}$ × 5½	$3\frac{5}{16}$ × 5½	$3\frac{5}{16}$ × 3⅔	2¾ × $3\frac{5}{16}$
Small Post ..	268¼	3⅝ × 9¼	$4^5/_6$ × 6⅙	4⅝ × $4^5/_6$	3⅝ × 4⅝	$3^1/_{12}$ × 3⅝	$2\frac{5}{16}$ × 3⅝
Foolscap ..	218⅝	$3\frac{5}{16}$ × 8¼	$4^5/_{12}$ × 5½	4⅛ × $4^5/_{12}$	$3\frac{5}{16}$ × 4⅛	2¾ × $3\frac{5}{16}$	$2\frac{1}{16}$ × $3\frac{5}{16}$
Large Post ..	346½	4⅛ × 10½	5½ × 7	5¼ × 5½	4⅛ × 5¼	3½ × 4⅛	2⅝ × 4⅛

STANDARDIZATION OF PAPER

MARKING OF PACKAGE.

All packages to be clearly marked with :

(1) Quality; (2) Size in inches; (3) Weight or substance; (4) Number of sheets in the package.

SPECIAL MAKINGS.

To the order of a customer, paper may be made in any size or number of sheets to the package, but must not be marked with the standard name unless it be in all respects a standard size and thousand. If a paper maker or stationer, to meet his customer's requirements, stocks off-size papers, they must be described by their size in inches and not by a standard name.

VARIATION IN WEIGHT, ETC.

The percentage of variation in weight in a thousand, the over or short make in special makings, and the inclusion of the wrapper and string in the weight, as at present agreed by the British Paper Trade Customs, are not affected by these new standards.

STANDARD NAMES AND SIZES FOR PAPER AND BOARDS.

If boards are sold under a name and are untrimmed, they must be of such a size as to cut to standard size.

WRITING PAPERS (Trimmed)

Foolscap	13¼" × 16½"	Small Medium	17½" × 22"
Small Post	14½" × 18½"	Medium	18" × 23"
Sheet and ⅓ Cap	13¼" × 22"	Small Royal	19" × 24"
Sheet and ½ Cap	13¼" × 24¾"	Super Royal	19" × 27"
Small Demy	15½" × 20"	Imperial	22" × 30"
Large Post	16½" × 21"		

PRINTING PAPERS (Trimmed)

Large Foolscap	13½" × 17"	Medium	18" × 23"
Crown	15" × 20"	Royal	20" × 25"
Large Post	16½" × 21"	Large Royal	20" × 27"
Demy	17½" × 22½"	Imperial	22" × 30"

BOARDS (Trimmed)

Royal	20" × 25"	Large Imperial	22" × 32"
Postal	22½" × 28½"	Index	25½" × 30½"
Imperial	22" × 30"		

All double and quad sizes are to be exact multiples of the standard sizes.

TABLE CONVERTING THE PRICE PER REAM

(CONTAINING 480 SHEETS OR 516 SHEETS) INTO THE PRICE PER 1,000, PER 100, AND PER 10 SHEETS.

If a ream contains **480** sheets.						Cost per ream.	If a ream contains **516** sheets.					
1,000 sheets cost			100 sheets cost		10 sheets cost		1,000 sheets cost			100 sheets cost		10 sheets cost
£	*s.*	*d.*	*s.*	*d.*	*d.*		*£*	*s.*	*d.*	*s.*	*d.*	*d.*
		6¼		½	—	**3d.**			5¾		½	—
	1	0½		1¼	⅛	**6d.**			11½		1	—
	1	6¾		1¾	⅛	**9d.**		1	5½		1¾	⅛
	6	3		7½	¾	**3/-**		5	9¾		7	¾
	6	9¼		8¼	¾	**3/3**		6	3½		7½	¾
	7	3½		8¾	¾	**3/6**		6	9¼		8	¾
	7	9¾		9¼	1	**3/9**		7	3		8¾	¾
	8	4		10	1	**4/-**		7	9		9¼	1
	8	10¼		10¾	1	**4/3**		8	2¾		10	1
	9	4½		11¼	1¼	**4/6**		8	8½		10½	1
	9	10¾		11¾	1¼	**4/9**		9	2½		11	1
	10	5	1	0½	1¼	**5/-**		9	8¼		11½	1
	10	11¼	1	1¼	1¼	**5/3**		10	2	1	0¼	1¼
	11	5½	1	1¾	1¼	**5/6**		10	7¾	1	0¾	1¼
	11	11¾	1	2½	1½	**5/9**		11	1¾	1	1¼	1¼
	12	6	1	3	1½	**6/-**		11	7½	1	2	1¼
	13	0¼	1	3½	1½	**6/3**		12	1¼	1	2½	1½
	13	6½	1	4¼	1¾	**6/6**		12	7	1	3	1½
	14	0¾	1	4¾	1¾	**6/9**		13	0¾	1	3¾	1½
	14	7	1	5½	1¾	**7/-**		13	6¾	1	4¼	1½
	15	1¼	1	6	1¾	**7/3**		14	0½	1	4¾	1¾
	15	7½	1	6¾	1¾	**7/6**		14	6¼	1	5½	1¾
	16	1¾	1	7¼	2	**7/9**		15	0¼	1	6	1¾
	16	8	1	8	2	**8/-**		15	6	1	6½	1¾
	17	2½	1	8½	2	**8/3**		15	11¾	1	7¼	2
	17	8½	1	9¼	2	**8/6**		16	5½	1	7¾	2
	18	2¾	1	9¾	2	**8/9**		16	11½	1	8½	2
	18	9	1	10½	2¼	**9/-**		17	5¼	1	9	2
	19	3¼	1	11	2¼	**9/3**		17	11	1	9½	2¼
	19	9½	1	11¾	2¼	**9/6**		18	4¾	1	10	2¼
1	0	3¾	2	0¼	2½	**9/9**		18	10¾	1	10½	2¼
1	0	10	2	1	2½	**10/-**		19	4½	1	11¼	2¼
1	1	10½	2	2¼	2½	**10/6**	1	0	4	2	0½	2½

TABLE CONVERTING THE PRICE PER REAM—(continued)

If a ream contains 480 sheets.			Cost per ream	If a ream contains 516 sheets.		
1,000 sheets cost	100 sheets cost	10 sheets cost		1,000 sheets cost	100 sheets cost	10 sheets cost
£ s. d.	s. d.	d.		£ s. d.	s. d.	d.
1 2 11	2 3½	2¾	**11/-**	1 1 3¾	2 1½	2½
1 3 11½	2 4¾	2¾	**11/6**	1 2 3½	2 2¾	2¾
1 5 0	2 6	3	**12/-**	1 3 3	2 4	2¾
1 6 0½	2 7¼	3	**12/6**	1 4 2¾	2 5¼	3
1 7 1	2 8½	3¼	**13/-**	1 5 2¼	2 6¼	3
1 8 1½	2 9¾	3¼	**13/6**	1 6 2	2 7½	3¼
1 9 2	2 11	3½	**14/-**	1 7 1½	2 8½	3¼
1 10 2½	3 0¼	3½	**14/6**	1 8 1¼	2 9¾	3½
1 11 3	3 1½	3¾	**15/-**	1 9 0¾	2 10¾	3½
1 12 3½	3 2¾	3¾	**15/6**	1 10 0½	3 0	3¾
1 13 4	3 4	4	**16/-**	1 11 0	3 1¼	3¾
1 14 4¼	3 5¼	4	**16/6**	1 11 11¾	3 2½	4
1 15 5	3 6½	4¼	**17/-**	1 12 11¼	3 3¾	4
1 16 5½	3 7¾	4¼	**17/6**	1 13 11	3 4¾	4¼
1 17 6	3 9	4½	**18/-**	1 14 10½	3 5¾	4¼
1 18 6½	3 10¼	4½	**18/6**	1 15 10¼	3 7	4¼
1 19 7	3 11½	4¾	**19/-**	1 16 9¾	3 8¼	4½
2 0 7½	4 0¾	4¾	**19/6**	1 17 9½	3 9¼	4½
2 1 8	4 2	5	**20/-**	1 18 9	3 10½	4¾
2 2 8½	4 3¼	5	**20/6**	1 19 8¾	3 11¾	4¾
2 3 9	4 4½	5¼	**21/-**	2 0 8½	4 0¾	5
2 4 9½	4 5¾	5¼	**21/6**	2 1 8	4 2	5
2 5 10	4 7	5½	**22/-**	2 2 7½	4 3¼	5
2 6 10½	4 8¼	5½	**22/6**	2 3 7¼	4 4¼	5¼
2 7 11	4 9½	5¾	**23/-**	2 4 6¾	4 5½	5¼
2 8 11½	4 10¼	5¾	**23/6**	2 5 6½	4 6¾	5½
2 10 0	5 0	6	**24/-**	2 6 6	4 7¾	5½
2 11 0½	5 1¼	6	**24/6**	2 7 5¾	4 9	5¾
2 12 1	5 2½	6¼	**25/-**	2 8 5¼	4 10	5¾
2 13 1½	5 3¾	6¼	**25/6**	2 9 5	4 11¼	6

METHOD OF FINDING THE PRICE OF SHEETS WHEN PRICE PER 1,000 IS QUOTED.

Convert the price per 1,000 into pence, and place a decimal point three figures from the right. The result is the price of 1 sheet in decimals of a penny. If the decimal point be placed two figures from the right the result is the price of 10 sheets, and if the decimal point be placed one figure from the right the price of 100 sheets is shown.

TABLE CONVERTING THE PRICE PER REAM—(continued)

If a ream contains 480 sheets			Cost per ream	If a ream contains 516 sheets		
1,000 sheets cost	100 sheets cost	10 sheets cost		1,000 sheets cost	100 sheets cost	10 sheets cost
£ s. d.	s. d.	s. d.		£ s. d.	s. d.	s. d.
2 14 2	5 5	6½	26/-	2 10 4½	5 0½	6
2 15 2½	5 6¼	6½	26/6	2 11 4¼	5 1½	6¼
2 16 3	5 7½	6¾	27/-	2 12 3¾	5 2¾	6¼
2 17 3½	5 8¾	6¾	27/6	2 13 3½	5 4	6½
2 18 4	5 10	7	28/-	2 14 3	5 5	6½
2 19 4½	5 11¼	7	28/6	2 15 2¾	5 6¼	6¾
3 0 5	6 0½	7¼	29/-	2 16 2½	5 7½	6¾
3 1 5½	6 1¾	7¼	29/6	2 17 2	5 8½	7
3 2 6	6 3	7½	30/-	2 18 1½	5 9¾	7
3 4 7	6 5½	7¾	31/-	3 0 0¾	6 0	7¼
3 6 8	6 8	8	32/-	3 2 0	6 2¼	7½
3 8 9	6 10½	8¼	33/-	3 3 11½	6 4¾	7¾
3 10 10	7 1	8½	34/-	3 5 10¾	6 7	8
3 12 11	7 3½	8¾	35/-	3 7 10	6 9¼	8¼
3 15 0	7 6	9	36/-	3 9 9¼	6 11¾	8½
3 17 1	7 8½	9¼	37/-	3 11 8½	7 2	8¾
3 19 2	7 11	9½	38/-	3 13 7¾	7 4¼	8¾
4 1 3	8 1½	9¾	39/-	3 15 7	7 6¾	9
4 3 4	8 4	10	40/-	3 17 6¼	7 9	9¼
4 5 5	8 6½	10¼	41/-	3 19 5½	7 11¼	9½
4 7 6	8 9	10½	42/-	4 1 4¾	8 1¾	9¾
4 9 7	8 11½	10¾	43/-	4 3 4	8 4	10
4 11 8	9 2	11	44/-	4 5 3¼	8 6¼	10¼
4 13 9	9 4½	11¼	45/-	4 7 2½	8 8¾	10½
4 15 10	9 7	11½	46/-	4 9 1¾	8 11	10¾
4 17 11	9 9½	11¾	47/-	4 11 1	9 1¼	11
5 0 0	10 0	1 0	48/-	4 13 0¼	9 3¾	11¼
5 2 1	10 2½	1 0¼	49/-	4 14 11½	9 6	11½
5 4 2	10 5	1 0½	50/-	4 16 10¾	9 8¼	11¾
5 6 3	10 7½	1 0¾	51/-	4 18 10	9 10½	1 0
5 8 4	10 10	1 1	52/-	5 0 9¼	10 1	1 0
5 10 5	11 0½	1 1¼	53/-	5 2 8½	10 3¼	1 0¼
5 12 6	11 3	1 1½	54/-	5 4 7¾	10 5¾	1 0½
5 14 7	11 5½	1 1¾	55/-	5 6 7	10 8	1 0¾
5 16 8	11 8	1 2	56/-	5 8 6¼	10 10¼	1 1
5 18 9	11 10½	1 2¼	57/-	5 10 5½	11 0½	1 1¼

TABLE CONVERTING THE PRICE PER REAM—(continued)

If a ream contains 480 sheets			Cost per ream	If a ream contains 516 sheets		
1,000 sheets cost	100 sheets cost	10 sheets cost		1,000 sheets cost	100 sheets cost	10 sheets cost
£ s. d.	*s. d.*	*s. d.*		*£ s. d.*	*s. d.*	d.
6 0 10	12 1	1 2½	**58/-**	5 12 4¾	11 3	1 1½
6 2 11	12 3½	1 2¾	**59/-**	5 14 4	11 5¼	1 1¾
6 5 0	12 6	1 3	**60/-**	5 16 3¼	11 7½	1 2
6 7 1	12 8½	1 3¼	**61/-**	5 18 2½	11 9¾	1 2¼
6 9 2	12 11	1 3½	**62/-**	6 0 1¾	12 0	1 2½
6 11 3	13 1½	1 3¾	**63/-**	6 2 1	12 2½	1 2¾
6 13 4	13 4	1 4	**64/-**	6 4 0¼	12 4¾	1 3
6 15 5	13 6½	1 4¼	**65/-**	6 5 11½	12 7¼	1 3¼
6 17 6	13 9	1 4½	**66/-**	6 7 10¾	12 9½	1 3½
6 19 7	13 11½	1 4¾	**67/-**	6 9 10	12 11¾	1 3¾
7 1 8	14 2	1 5	**68/-**	6 11 9¼	13 2	1 4
7 3 9	14 4½	1 5¼	**69/-**	6 13 8½	13 4½	1 4
7 5 10	14 7	1 5½	**70/-**	6 15 7¾	13 6¾	1 4¼
7 7 11	14 9½	1 5¾	**71/-**	6 17 7	13 9	1 4½
7 10 0	15 0	1 6	**72/-**	6 19 6¼	13 11½	1 4¾
7 12 1	15 2½	1 6¼	**73/-**	7 1 5½	14 1¾	1 5
7 14 2	15 5	1 6½	**74/-**	7 3 4¾	14 4	1 5¼
7 16 3	15 7½	1 6¾	**75/-**	7 5 4	14 6¼	1 5½
7 18 4	15 10	1 7	**76/-**	7 7 3¼	14 8¾	1 5¾
8 0 5	16 0½	1 7¼	**77/-**	7 9 2½	14 11	1 6
8 2 6	16 3	1 7½	**78/-**	7 11 2	15 1¼	1 6¼
8 4 7	16 5½	1 7¾	**79/-**	7 13 1¼	15 3¾	1 6¼
8 6 8	16 8	1 8	**80/-**	7 15 0½	15 6	1 6½

Example :—1,000 sheets cost 35s. 6d., or 426 pence.

1 sheet costs	.426 pence	=	½d.
10 sheets cost	4.26 pence	=	4¼d.
100 sheets cost	42.6 pence	=	3/6½

TABLE CONVERTING FRACTIONS INTO DECIMALS OF ONE PENNY AND VICE VERSA.

Decimal equivalents.	
⅛	.125
¼	.25
⅜	.375
½	.5

Decimal equivalents.	
⅝	.625
¾	.75
⅞	.875

EQUIVALENT WEIGHTS OF PAPERS

PRINTING PAPERS

Demy. 22½ × 17¾	Royal. 25 × 20			Super Royal. 28 × 20			Imperial. 30 × 22			D. Foolscap. 27 × 17			D. Crown. 30 × 20		
lb.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.
12	15	0	10	16	13	8	19	13	10	13	12	14	18	0	12
13	16	4	10	18	3	15	21	8	1	14	15	4	19	8	13
14	17	8	11	19	10	6	23	2	8	16	1	11	21	0	13
15	18	12	12	21	0	13	24	13	0	17	4	1	22	8	14
16	20	0	13	22	7	5	26	7	7	18	6	8	24	0	15
17	21	4	14	23	13	12	28	1	15	19	8	14	25	9	0
18	22	8	14	25	4	3	29	12	6	20	11	5	27	1	1
19	23	12	15	26	10	11	31	6	14	21	13	11	28	9	2
20	25	1	0	28	1	2	33	1	5	23	0	2	30	1	3
21	26	5	1	29	7	9	34	11	13	24	2	8	31	9	4
22	27	9	2	30	14	1	36	6	4	25	4	15	33	1	5
23	28	13	2	32	4	8	38	0	12	26	7	5	34	9	6
24	30	1	3	33	10	15	39	11	3	27	9	12	36	1	7
25	31	5	4	35	1	6	41	5	10	28	12	2	37	9	8
26	32	9	5	36	7	14	43	0	2	29	14	9	39	1	9
27	33	13	6	37	14	5	44	10	9	31	0	15	40	9	10
28	35	1	6	39	4	12	46	5	1	32	3	6	42	1	11
29	36	5	7	40	11	4	47	15	8	33	5	12	43	9	12
30	37	9	8	42	1	11	49	10	0	34	8	3	45	1	13

WRITING PAPERS

L. Post. 21 × 16½	Foolscap 16¾ × 13¼			Post. 19 × 15¼			Ex. L. Post. 22½ × 17¾			Royal. 24 × 19¼			Su. Royal. 27 × 19¼			Imperial. 30 × 22		
lb.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.	lb.	oz.	dwt.
12	7	11	3	10	0	15	13	13	15	16	0	6	18	0	9	22	14	4
13	8	5	7	10	14	5	15	0	7	17	5	12	19	8	10	24	12	12
14	8	15	12	11	11	12	16	2	15	18	11	2	21	0	10	26	11	5
15	9	10	0	12	9	3	17	5	7	20	0	7	22	8	11	28	9	13
16	10	4	4	13	6	9	18	7	15	21	5	13	24	0	12	30	8	5
17	10	14	8	14	4	0	19	10	7	22	11	3	25	8	13	32	6	14
18	11	8	13	15	1	6	20	12	15	24	0	9	27	0	13	34	5	6
19	12	3	1	15	14	13	21	15	7	25	5	15	28	8	14	36	3	14
20	12	13	5	16	12	3	23	1	15	26	11	5	30	0	15	38	2	6
21	13	7	9	17	9	10	24	4	7	28	0	10	31	9	0	40	0	15
22	14	1	14	18	7	0	25	7	0	29	6	0	33	1	0	41	15	7
23	14	12	2	19	4	7	26	9	7	30	11	6	34	9	1	43	13	15
24	15	6	6	20	1	14	27	11	15	32	0	12	36	1	2	45	12	8
25	16	0	10	20	15	4	28	14	7	33	6	2	37	9	3	47	11	0
26	16	10	15	21	12	11	30	0	15	34	11	8	39	1	3	49	9	8
27	17	5	3	22	10	1	31	3	7	36	0	13	40	9	4	51	8	1
28	17	15	7	23	7	8	32	5	15	37	6	3	42	1	5	53	6	9
29	18	9	11	24	4	14	33	8	7	38	11	9	43	9	5	55	5	1
30	19	4	0	25	2	5	34	10	15	40	0	15	45	1	6	57	3	10

THE MACHINE ROOM

What you should know about the Miehle

THE Miehle two-revolution press is recognized throughout Great Britain and the Dominions overseas as the best letterpress machine for the production of half-tone, three- and four-colour printing, book and magazine work, and high-grade commercial jobbing, at varying speeds on all classes of work up to 3,000 impressions an hour, according to the size of the press.

The Miehle is an all-British standardized high-grade printing press, built at the works of Linotype and Machinery Limited, at Altrincham, Cheshire, under the L. & M. guarantee of material and workmanship, and the machine embodies all that is best in the modern two-revolution principle.

This press ensures rapid output, a rigid type bed, quick but quiet movement, and a bed motion without jar and irregularity of travel. It costs less to run a Miehle because it requires only the make-ready which is necessitated by imperfections in the forme. The greater part of the make-ready now necessary on ordinary presses is eliminated when you have a Miehle, because every part of the machine associated with the impression is ground to one-thousandth part of an inch. This alone is an ample guarantee to users that the cost of the production of fine printing is reduced to a minimum. The accessibility of the cylinder and type forme accelerate the work in this direction.

The Miehle gives perfect register, and there is no deterioration in its efficiency in this respect after hard and continuous wear. The precision of action which governs the movement of the machine produces a quality of product which, combined with its high capacity, make it the least expensive of printing presses on the market. It meets the most exacting requirements for all sizes and thicknesses of paper.

Although embodying the most effective mechanical movements in printing presses, it has comparatively few working parts and adjustments, and in view of its large capacity is one of the simplest printing machines built. All parts are easily accessible and under the full control of the machine minder, resulting in a considerable saving of time in correcting formes, underlaying and interlaying blocks, attending to the ink duct, and the lubricating of parts.

The flow of ink is regulated by a series of screws which are immediately below the delivery board, so that the machine minder is able readily to examine the printed sheets and make his adjustments accordingly. The ink supply is automatically checked when the cylinder is tripped, and the great inking power is reinforced by a pyramid roller, making a complete unit of nine rollers, which supply the forme with ink at each stroke of the bed.

With regard to the precision of action which governs the movement of the Miehle, it is the accuracy of this movement which lays dot by dot in half-tone printing, and so produces the beautiful colour effects for which this press is renowned.

The two-revolution principle gives ample time for laying the sheets to the guides—a matter of great importance in the production of dead register work. Without stopping the machine, the cylinder can be checked when necessary by the foot trip, the assistant thus having both hands at liberty.

The cylinder is cast in one piece, including the ends or journals which revolve in the cylinder boxes. The interior of the cylinder is well ribbed, and is so designed and placed as to combine great rigidity and strength with lightness. The cylinder, fitted with gear and fittings, is accurately balanced and its entire surface is turned and ground.

The cylinder rotates continuously when the press is in operation, making two complete revolutions for each impression. On the printing revolution the cylinder is lowered to bring it into contact with the forme, and is raised on its second revolution to clear the forme on the return stroke of the bed towards the ink fountain end of the press.

The rotation speed of the cylinder is constant, and this, coupled with the even movement and smooth reversal of the bed at each end of its stroke, constitutes the main factors in the perfect running of the machine.

On its second or non-printing revolution the cylinder is raised by means of a cam giving two lifts. The first ensures clearance of the forme, but is not sufficient to allow the printed sheet to touch the under guides attached to the feed board apron. The second lift raises the cylinder to its topmost position, which brings the cylinder packing as close as possible to the under guides.

The sheet to be printed is practically in the same plane as the cylinder packing when the grippers close on to it, thus obviating all possibility of the sheet buckling, and contributing to perfect register for which this press is renowned.

By means of a pedal, the cylinder can be checked from coming into contact with the forme on its printing revolution, so as to avoid printing on the cylinder packing should a sheet not be presented to the front guides at the correct time.

The bed motion gear governs the reciprocal movement of the bed by means of its alternate engagement in the upper and lower racks of the rack frame attached to the underside of the bed. These racks are staggered or positioned on each side of a vertical line to the centre of the bed, and the bed motion gear is displaced laterally from one rack to the other at the end of each stroke of the bed. When the machine is printing, the gear is engaged in the upper rack, and in the lower one on the non-printing stroke.

The lateral movement of the gear is effected through the medium of a cam lever, and during this operation the bed is controlled by means of a crank fitted with two rollers and attached to the end of the shaft carrying the bed motion gear. These rollers engage alternately in steel-lined gates fitted to each end of the rack frame. One side of each gate is fixed, whilst the other swings open to allow the roller to pass, and closes immediately the roller comes into contact with the fixed steel. The roller is thus engaged between two parallel steel shoes, and in the course of a half revolution of the crank the direction of the movement of the bed is reversed.

SOME PRACTICAL HINTS ON MAKING READY

Generally speaking, when one refers to making ready he has in mind the whole of the work that is necessary for the minder to perform, from the time the forme is received from the composing room until he is in the position to commence the run. This, of course, depends largely on the condition of both the forme and the machine. With the great improvements in up-to-date presses as well as in the actual printing surfaces, the amount of making ready formerly necessary has considerably decreased, but skilled minders are still required to get the best from both.

For a moment, endeavour to visualize the first pull from a forme of old movable type, which has been used over and over again, the larger sizes being so ground down as to necessitate underlaying with several thicknesses of paper to raise them to their original height. Then picture this forme put on an old machine, the bed and cylinder of which are so out of the true that both have to be packed up before the outside pages will print at all, and you will have some idea of the average first impression of not so very many years ago.

Now compare this with the first impression taken on a Miehle machine, from a forme composed of entirely new Linotype slugs, and it will be apparent that, as regards the actual patching up, in this case you start where before you left off.

So excellent is the modern press that the minder apprentice, not having to use his skill to the extent one had to in the old days, is liable to suffer accordingly by treating his craft too lightly.

These notes on making ready are primarily addressed to the minder just taking up a Miehle and to those who have not felt confident to do so. These modern machines are being built and installed more rapidly than ever, and they will each require a minder. Why not you?

THE FORME

Care should be taken that the back of the forme is free from pieces of stray metal, etc., that may have been picked up during imposition.

On the bed of your machine you will find three lines, called head lines. These are the safety marks for placing the forme, which should never be brought more forward until you are sure that the grippers will clear it. The reason there are three is that, for the purpose of working full-out jobs the cylinder can be altered to allow of extra on the " grip " or the " leave " as the case may be; consequently the pitch alters according to the position of the cylinder.

If this should be a minder's first experience with this class of machine, the best method to adopt is to take the back mark for the right one, and wait for his first sheet out before he makes any alterations. He will then see at once how far it is safe to shift the forme. When once he has got position he can cut a gauge, and by allowing for the width of the margin he should be able to put his formes on each time correctly.

For the safe transit of the forme between composing and machine rooms, it is necessary to lock up the forme much tighter than it is desirable to work it. This often causes the forme to spring and the chase to bow, and it is therefore advisable to unlock all round, thoroughly loosening the quoins so that the chase may resume its normal shape.

When there are any blocks in the forme, they should be checked to make sure that they are standing firmly, and also tested with a type-high gauge. The actual height of the block must be governed by the nature of it—that is to say, should it be of a heavy nature (abounding in deep tones and solids), it should be well up to type high; but if on the other hand it is composed of delicate tones or a vignette, it is better to have it a trifle lower. If the run is to be a long one, it is advisable to allow for a light interlay between metal and mount.

The furniture in each section of the forme should be the same exactly, otherwise the forme will not register. If there are any rule borders, see that the mitred ends close up perfectly. The forme should be perfectly square when it is locked up, care being taken to see that nothing is binding and that no other minor causes of trouble have been overlooked.

When that work has been completed, push the pages well up to the centre bars and fit the quoins again lightly, changing if necessary.

Having fitted the quoins for the inside of the chase, now lock up lightly round the outside to prevent any further bowing.

See that the chase is flat on the bed and lightly plane down the forme, remembering that the face of your forme is very delicate and should be treated accordingly.

Now lock up inside the chase, applying the pressure evenly and steadily, and you will find that the time you have spent on the careful handling of the forme will be saved when you come to get the register.

When a job is being worked in two or more colours it is best to use the same furniture for each colour, except when the border only is in colour. If the same furniture is used for each forme in a two- or three-colour job, perfect register can be guaranteed.

DRESSING THE CYLINDER

Move the machine around until the cylinder is in position with the grippers open and at the top; then raise the shoo flies and open the sheet clamps by means of the lever at the side of the cylinder.

It should not be necessary to put up more than about six sheets for making ready, pasting the bottom two in, but leaving the others loose for future convenience.

A great deal of trouble may arise through too much packing. As the cylinder of the press is ground dead true, something is bound to be damaged if the packing is too thick. In addition, it is obvious that if the circumference of the cylinder is increased it travels slightly faster than the bed, and so causes the sheets to drag on the forme, resulting in thick or slurred printing.

If possible, it is advisable to work with an outside manilla covering drawn tight around the back bar, as this enables you freely to get to your make-ready, should anything happen on the run.

Now close the sheet clamps by forcing home the lever behind the stud on the side of the cylinder, drop the shoo flies, and slowly move machine around, smoothing out the sheets as you go until you can either tighten them around the back bar or fasten them to the back of the cylinder.

SETTING LAYS

Set the front guides and tongues so that they are clear of the grippers and shoo flies, always remembering that the farther you can keep them apart the more accurate will be the lay. For a quad crown sheet it is advisable to have the guides about five inches from each end of the sheet. See that the guides are set so as to give the same amount of " gripper bite " on each side; this should be about twelve points. A gripper should hold the sheet not more than an inch from each end; that will prevent the sheet from " cornering."

Should you be taking over a new machine, the fitter will have left it with good clearance between the grippers, shoo flies, and stripper fingers, or if the machine has been running you can depend on the same conditions existing. Never shift a gripper, shoo fly, etc., without making quite sure before running the machine that there is a good clearance.

If you are engaged at an office where the work is of a commercial nature with jobs varying in size, it is far better to lay the formes to suit your grippers than have to suit your grippers to each forme. This can easily be done by taking a sheet of the paper and laying it along the cylinder, until you find a suitable position where you have a gripper at each end; then mark the position on the cylinder, measure from the bearer to the mark, and lay on the forme accordingly, keeping in mind the comfort of the feeder. You cannot expect good work if he is feeding in an awkward position.

Lower the laying-on board and move the cylinder round, making sure that the tongues do not touch the cylinder at any point of its revolution. These tongues can be altered by raising or lowering the feed-board by means of set screws under each end. The tongues should have a clearance of about six points. Do not be tempted to work them too high, or it will result in a bulge on the front lays and possibly a slur.

Having got the tongues right, move the cylinder round until the grippers are at the top but not yet opening; then set the front guides lightly on the tongues and adjust the side lay. Place a sheet down to the lays, release the impression trip, and move around on to the impression.

The cylinder is now down at its lowest point. Set the sheet bands lightly to the cylinder, taking care that they clear the grippers and shoo flies.

Presuming that ink is run up, now pull a sheet, check lays and register, also examine for weaknesses. Remember that if there is a fault in the forme, it should be remedied *in* the forme; do not rely on bringing it up on the cylinder.

Should the general weight of impression be too light, more packing is necessary. This should be put under the linen at the earliest opportunity, and should consist of hard material to resist the impression. If too heavy, the under-packing must be reduced at once, so as to ensure having sufficient sheets for patching. Whatever interlaying is required may now be done.

The minder, on taking charge of a Miehle for the first time, will find that the heavy make-ready he may have been used to is neither necessary nor desirable. Nevertheless, the work of levelling, etc., requires skilled attention, and should be well done.

OVERLAYS AND PATCHING

Having got the forme level and in register, it is now time to start the make-ready on the cylinder. Should there be half-tones in the forme, put a sheet through and stop the machine with the sheet clear of the forme but still held firmly by the grippers; now stab through for points to stick up to on the cylinder. Paste your overlays to this sheet and stick on the second sheet from the bottom. In this way, you will have another sheet on which to make up for any unevenness of the blocks. It is useless to spend time and care in cutting an overlay, and then to stick a lot of pieces on top of it, thus undoing all the work you have put into it. All levelling up should be done *under* the overlay; this will minimize risks of the marks made by the patching and also get full value out of the overlay.

From your loose sheets take one away to compensate for the one you have just added, and again tighten around the cylinder. Now run through a sheet of the paper the job is to be worked on, and see that overlays are on correctly. This sheet should be kept as a guide for any facing-up that may be required. Next pull a sheet for patching, stabbing through whilst in the grippers as before, but in such a way as not to be confused with the previous marks. This should be treated only for general impression.

Some minders, before patching a sheet, make elaborate preparations by tearing up a lot of strips of paper of about an inch in width, and whatever the size of the part to be covered, do so with these strips. This means that often you will see strip after strip right down a page. If you were to examine these closely you would find that, whilst some did not meet, others were overlapping each other; consequently instead of levelling the impression they were making it more uneven. It is far better, on this sheet, to pencil out the places that require building up, and then tear out pieces of the size and shape required.

Having completed the back, face up your half-tones should they require it, and stick this sheet on the *bottom* fast sheet on the cylinder (under the overlays); then take away another loose sheet and again tighten.

If it should be necessary to patch a second sheet, this can be stuck over the sheet with the overlays attached, and again take away a loose one so as to keep the same weight, and paste in the remaining sheets, with the exception of the manilla. Now pull the top sheet for any minor touching up that may be required, and then finally paste in the manilla.

ROLLING

Inkers should be set to roll the forme lightly, but firmly, up to the riders. It is a good test to raise the rollers, run the machine a few times, and stop the machine with the slab under the inkers; then drop the rollers, and lock; now raise them again, move out the slab, and look for marks of contact. These should appear in four distinct lines right across the slab, and be of an even width of about three nonpareils.

However well a job is made ready, if the rolling is bad the printing will look bad.

SETTING THE DELIVERY

Put down the delivery board and connect up the arm; then move the machine until the delivery is at its farthest point. Loosen the screw of the back stops and withdraw the pin from either side. Lay a sheet of paper for the job on to the delivery sticks, the front drawn close up to the fingers; slide the bar forward until the back stops (which should be up) are within about a quarter of an inch of the back of the sheet. Then replace the pins in suitable holes, and lightly draw forward the rod that operates the back stops until the rear pusher lever spring (sometimes known as the shape) is lightly touching the tumbler on the side arm. Now fasten the set screw on to the rod. Care should be taken not to put any strain on this rod, otherwise the back stops would fall before pushing off the sheet, owing to the spring caused by the strain.

Send a sheet through slowly and see that it is well supported, first of all by the tapes, and secondly by the delivery sticks, both of which should be evenly distributed over the full length of the sheet, particular care being taken that the ends are not allowed to drop. Should it be necessary to make any alterations to either of these, see that there is sufficient clearance before moving the machine again.

Next run a sheet through the machine, allowing it to fall sharply on to the delivery board, and stop the machine with the delivery right back. Adjust the jogging boards closely around the sheet and tighten up. The duct having been set, the minder should now be in a position to commence the run.

In these few notes I have endeavoured to lay particular emphasis on "care." Merely knowing what to do is not sufficient; it is the care with which it is done that makes an efficient minder.

SIZES AND DIMENSIONS OF THE MIEHLE

Size of Machine	Size of Sheet	Size of Type Matter	Maximum Speed Per Hour
000000	46 × 66 ins.	44 × 64 ins.	1,600
0000	42 × 61 ,,	40 × 58 ,,	1,700
00	42 × 55 ,,	40 × 52 ,,	1,800
1	36 × 52 ,,	34½ × 49 ,,	2,000
3	32 × 45 ,,	30 × 42 ,,	2,200
4	26 × 40½ ,,	24 × 37 ,,	2,400
6	18 × 23 ,,	17½ × 22½ ,,	3,000

HOW TO CORRECT A PROOF

A further purpose in the minds of those who designed, constructed, and furnished the Queen's Dolls' House was to present to Her Majesty a little model of the twentieth century which should be fitt ed up with perfect fidelity down to the details smallest so as to represent as closely and minutely as possible a genuine and complete example of a domestic interior with all the household arrangements characteristic of the daily life of the present time It is intended to be a pleasant spectacle for contemporary eyes in its neat contrivance, its careful planning, and its artistic finish, and at the same time to be an interesting and lifelike memorial for future times of the sort of way in which people ~~which people~~ of our own days found it desirable and agreeable to live.

The house thus represented is not a palace nor a ceremonious residence, but essentially a HOME, a family mansion belonging to a monarch who seeks relief from

cares of state in a quiet family life and a comfortable rather than luxurious ~~routine~~. It is dignified rather than magnificent, comodious without being ostentatious, it is not a house to contain man y guests, nor is it adapted for profuse or sumptuous entertainments. It would give a reasonable degree of comfort and privacy The approaching dinner hour would not be announced by an insistent smell from la cuisine nor would the incense of the smoking-room be wafted into the childrens schoolroom. The comfort of the domsetics and labour-saving apparatus are carefully provided for, the ventilation, lighting. and warming are kept sensibly in mind, the sanitation is perfect, motor-cars for daily use are not neglected, and the little garden is designed for recreation and contemplation.

The Home Beautiful

The inmateks are people of cultivated interests and tastes The pictures are well selected, and the library is rich in the works of contemporary authors They are fond of the open air, there is a modest array of guns and fishing rods, and the leather golf bag (though it hardly as yet shows signs of constant use is well supplied with clubs. There is a good cellar of wine And though there is hardly space for lavish hospitalities, a few trusted and honoured friends can be comfortably entertained

The Royal Mistress of the House is evidently a domestic *genius* ; the nurseries are planned for health and happiness. The store of linen might gladden any housewife's heart. Careful regard is paid to the welfare of the staff the offices are airy and large, and the beroom and bathroom accommodation is careful and ample. We may be sure that such a Mistress is little troubled by what is amiably called the domestic problem and the house from top to bottom is as neat as a new pin.

caps.	*capitals.*
=	*range.*
out, see copy	*omission.*
⁐	*close up.*
trs.	*transpose.*
⊥	*space down.*
×	*broken letter.*
w.f.	*wrong fount*
⊙	*full stop*
9	*turn letter*
eq.#	*equal space*
-/	*insert hyphen.*
₰	*double.*
no ¶	*run on*
l.c.	*lower case.*
₰ lead	*take out lead.*
stet	*let word remain*
m/	*insert* m.
=	*straighten line*
;/ l.c.	*not full stop*
N.P.	*new paragraph.*
ital.	*italics*
ʼ/	*insert apostrophe.*
trs.	*transpose letters.*
⅂	*fill line*
⌐	*overrun.*
centre	*centre line*
₰	*delete.*
×	*broken letter.*
□	*em space*
‖	*range lines*
( )/	*insert parenthesis.*
lead in	*insert lead*
take back	*avoid bad break.*
l.c.	*lower case*
rom.	*roman type*
S.caps.	*small capitals.*
⊙ cap.	*full point, cap*
d/	*insert* d.
?	*? to author.*
a/	*insert* a.
" "	*quotation marks.*

SUN
SERVICE BUREAU

FOR any information further to that contained in the foregoing pages, or any problem arising in your daily work in connection with engraving, paper, inks, or machines, write to:

The Sun Engraving Co., Limited,
Milford House,
Milford Lane,
Strand, W.C.2,

marking the envelope in the top left-hand corner "Sun Service Bureau," and you will be answered by an expert by return.

L'Envoi

IN the foregoing there is a tale and a moral ; the tale of four jolly men of the Printing Trade—the Block Maker, the Printing Ink Maker, the Paper Maker, and the Printing Machine Maker—and the moral is Co-operation.

If one wishes to get the best results he should consider the paper that he is going to print his blocks upon, the ink that is to be used in the printing, and the type of machine he employs. These considerations are necessary to get the perfect result.

When placing an order it is always advisable to tell the Block Maker the nature of the paper that the work will be printed upon, and then in turn to send this paper, with the Block Maker's proofs to the Ink Maker. The engraver will then be able to determine the screen to use, and the Ink Maker how to mix his ink to ensure the perfect printed impression.

If the user of Half-tone would carry out these methods of co-operation he would always have satisfactory results and not, as very often happens, be disappointed in the ultimate effect of his work.

THE SUN COMPLETE SERVICE

PROCESS ENGRAVING

LINE HALF-TONE : COLOUR

PHOTOGRAVURE PRINTING

FOLDERS : BROCHURES : CATALOGUES
IN MONOTONE AND FULL-COLOUR

PHOTOGRAVURE ETCHING

CYLINDER AND FLAT PLATES ETCHED
FOR ALL CLASSES OF MACHINES

COLOUR PRINTING TO THE TRADE

TYPESETTING FOR ADVERTISERS

TYPE DISPLAY FOR PRESS ADVERTISEMENTS IN THE LATEST TYPE FACES

ADVERTISEMENTS DESIGNED AND LAY-OUTS SUBMITTED

STEREOTYPING

ELECTROTYPING

CHROMIUM DEPOSITING

BY SUNCHROME PROCESS

PHOTOGRAPHY IN ALL ITS BRANCHES

DESIGNING

SUGGESTIONS AND LAY-OUTS SUBMITTED FOR SHOWCARDS : FOLDERS : BROCHURES : CATALOGUES AND ALL FORMS OF PICTORIAL PUBLICITY

RETOUCHING

The "SUN" spreads its rays of SERVICE to all parts of the British Isles
Glasgow
Newcastle
North Sea
Isle of Man
York
Leeds
Irish Sea
Liverpool
Manchester
Shrewsbury
Leicester
Norwich
Birmingham
Watford
Mouth of The Thames
Bristol Channel
Cardiff
Bristol
Reading
LONDON
Exeter
English Channel

The Offices and Works of

THE
SUN ENGRAVING Co.
LIMITED

Head Office and Works:

LONDON ...	Milford House, Milford Lane, Strand	*Telephone : Central* 1552 (5 *lines*) *Telegrams : "Operameter, Estrand, London"*

Country Works:

WATFORD, HERTS.	*Telephone : Watford* 635 *Telegrams : "Sun, Watford"*

Country Offices:

LIVERPOOL...	36 Dale Street ...	*Telephone : Central* 2903
GLASGOW ...	22a West Nile Street	*Telephone : Central* 1220
LEEDS ...	41-2 Greek Street Chambers ...	*Telephone : Leeds* 26085
BRISTOL ...	3 Queen Anne Buildings, 34 Baldwin Street	*Telephone : Bristol* 3497
MANCHESTER	23 Brazennose Street	*Telephone : City* 7659
LEICESTER ...	8 Corridor Chambers, Market Place	*Telephone : Leicester* 58754
BIRMINGHAM	16 White House 111 New Street ...	*Telephone : Midland* 1541
READING ...	295 Oxford Road	*Telephone : Reading* 1549

What Another Penny on the Paper Will Do

SO much advertising matter to-day is printed on the cheaper grade paper, and the result inevitably loses a very large amount of its "pulling power."

It is sometimes worth while to make a comparison between an ordinary paper and a first-class grade; frequently the difference in result is so manifest that the extra cost involved is negligible by comparison.

We venture to think, also, that even good blocks and good inks lose their effect, and last, but not least, the art of the craftsman is limited by the use of cheap paper.

Whilst we know that our Printing Friends are perfectly well aware of these very elementary remarks, at the same time we venture to repeat them, as we have so often met with this experience in the past.

LION BRAND

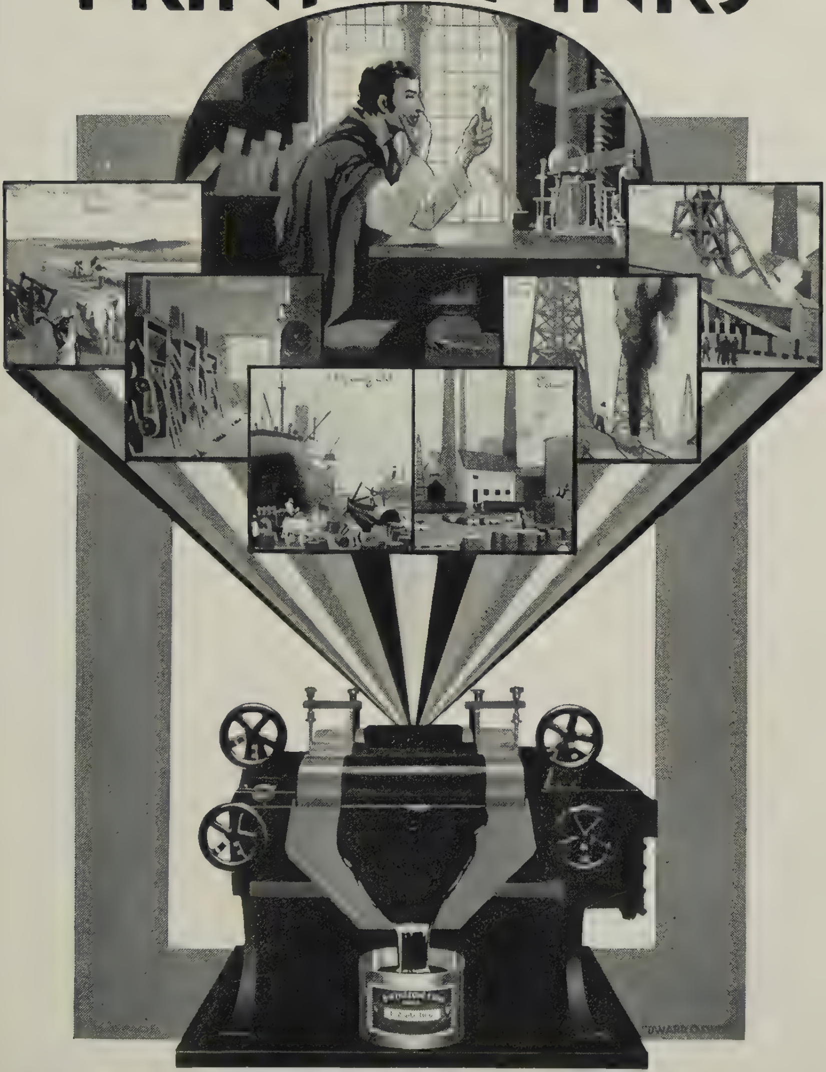
COATED PAPERS
AND
BOARDS

THE BEST PAPER FOR THE BEST WORK

Manufactured by

JOHN DICKINSON & CO. LTD.
HOME PARK MILLS, KINGS LANGLEY, Herts.

PRINTING INKS



B. WINSTONE & SONS. LTD.

MECHANISED CRAFTSMANSHIP

Super-craftsmen do sometimes produce high-grade work with low-grade tools; but such men are scarce, and the method is both expensive and uneconomical. Craftsmanship is built into the Miehle and therefore the high quality of the printing it produces is consistently good. It is this dependability that makes it the most economical printing press that can be found in any works

The Miehle is
manufactured in England by
LINOTYPE & MACHINERY LIMITED
at their Works in
Cheshire.

All Printers Who Use Stereotyping Equipment

ATTENTION!

IN Illustrated Newspaper plants, in the large publishing houses and other printing offices where stereotyping is done, Light's "Photo-tone" Flongs will reduce mechanical costs.

As compared with the ordinary flong they will produce superior moulds in less than half the time, and no mangle being required and half the amount of packing used, type faces are protected and will not round so readily.

Three Qualities

Fine Art, News, Jobbing

Light's "Photo-tone" Fine Art Flong will give perfect reproduction of fine-screen half-tones in the quickest time at a minimum cost. The News and Jobbing qualities give best results on half-tone cuts of less than 100 screen. The finished stereo plate has a much sharper printing face than can be had from either the old pasted flong or the plaster process. The time saved in making a mould and the large number of casts obtainable per matrix are big considerations.

Better send for a sample quire.
State the nature of the work. Full
working instructions included.

Wm. J. Light & Co., Ltd.

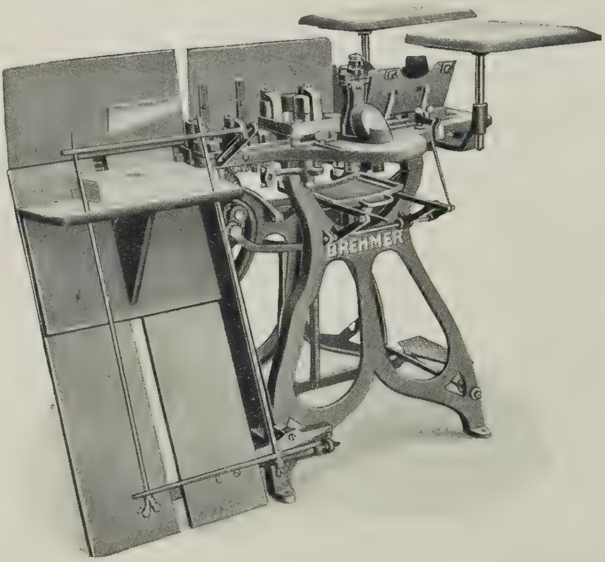
36-38 Whitefriars Street, London, E.C.4, Eng.

Telephone: CENTRAL 3839. *Telegrams:* "Winkolight, Fleet, London."

For PASTING PLATES, INSERTS OR END SHEETS *to* SECTIONS

The BREHMER

END-SHEET PASTING MACHINE IS INVALUABLE



THIS is Brehmer's No. 62¼ End Sheet Paster which ensures good and clean pasting of Front and End sheets as well as Plates, etc., to sections of books. The fact that this machine gives three times greater the output of hand pasting and requires practically no upkeep, makes it a most practical machine for any modern bindery. Sheets can be pasted to right or left of sections, either flush with the back or turned round the back so that they can also be secured further when the sewing operation is performed. Full particulars upon application to—

AUG. BREHMER'S (BRITISH SUCCESSOR)
LIMITED

'Phone
Clerkenwell
0781/2

12 CITY ROAD
LONDON, E.C.1

'Grams
Papyrus, Finsquare,
London.

ILFORD

MANUFACTURES

ARE known throughout the World for their high Quality and Uniformity—the result of long experience and the invariable selection of none but the best materials for their manufacture.

ILFORD PROCESS PLATES are unequalled. They give negatives with strong contrasts and wonderful clearness in the shadows with extremely crisp dot formation.

ILFORD RAPID PROCESS PANCHROMATIC PLATES have all the qualities of the above together with perfect Panchromatic qualities and should be used for all coloured objects.

"PANCHROMATISM." The new (tenth) edition is copiously illustrated, printed on art paper, and consists of 32 + X pages, quarto size. Price 6d., including new Test Colour Chart. Post free in the United Kingdom, 8d.

ILFORD MANUAL OF PROCESS WORK by L. P. Clerc, Professor of Photomechanical Processes at the Ecole Municipale Estienne (Paris). 251 pages, copiously illustrated. Price, 7s. 6d. Post free in the United Kingdom, 7s. 6d.

REGISTERED
TRADE MARK

Price List post free on application.

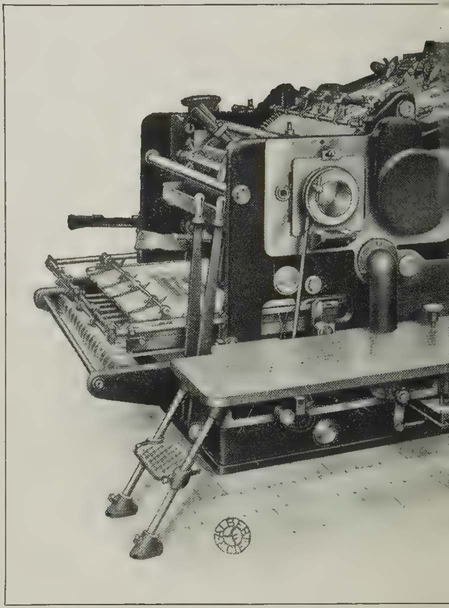
ILFORD, Limited,
ILFORD, LONDON, ENGLAND.

WHAT THE PRINTER

PHOTOGRAVURE: THE PERFECT

THE varied range of Printing Machinery manufactured by Messr
Albert & Cie., A.G., of Frankenthal, is produced in the large
factory in Europe which devotes itself solely to the manufactu
of Printing Machinery. Their specialities are Newspaper and Magazi
Rotaries, fixed and All-size; complete stereo plants; a complete ran
of high-class Letterpress machines; Offset machines, single and two-colour, either sheet or reel-fed; Photogravure machines, sheet-fed and working from the reel.

The illustration represents the sheet-fed Photogravure machine "Palatia" with Automatic feeder, made in two sizes. The Albert Works also build special Rotary Photogravure machines to suit customers' requirements, and Rotary All-size Multi-colour Photogravure Machines.



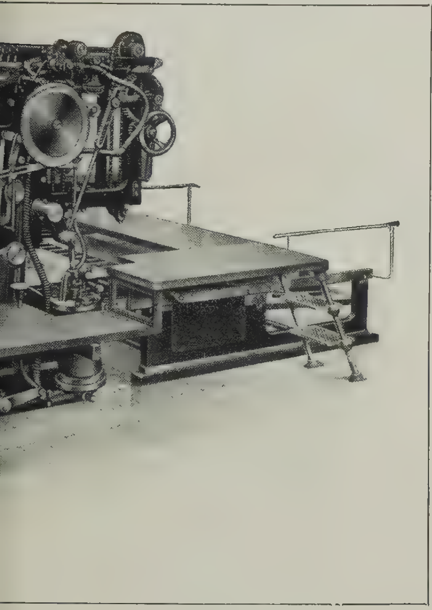
The wonderful popularity of rotary photogravure is very manifest on opening current magazines, periodicals, or any of the numerous brochures that are issued by the Modern Advertiser. In nearly every instance supple-
ments are printed by this remarkable process which carries with it
force so compelling that the reader is engrossed for some considerabl
time with its pages. Consequently the brochure is not lightly throw
away as is common with most advertising literature but is carefull
kept for reference, or its pictorial story may be so alluring that it secure
a ready purchaser. Every form of advertising can be successfull
treated by the photogravure process ranging from the beautiful Editio

PRICE, SERVICE & CO., Norfolk H
and at MANCHESTER, BIRMINGHAM & DUB

S BEEN LOOKING FOR
)CESS IN THE PRINTER'S CRAFT!!

: Luxe to the common hand-bill. Pictorial Posters have every
ppearance of being enlarged photographs.

ne great advantage of the photogravure process over other methods
pictorial reproduction lies in its subtle charm, wealth of detail,
:hness and depth of shadow, combined with real photographic effects which can be printed on paper of almost indifferent quality. In this latter instance the scope is almost unlimited, while the effects that are obtained on antique paper, cartridge, vellum and papers of a similar description are most entrancing.



There are many advantages offered by this process. The illustration could be printed by Photogravure and the letterpress matter overprinted in a different colour ink. Tint borders could also be introduced, or the whole of the work printed by Photogravure in one or more colours. To the practical mind this opens up vast possibilities.

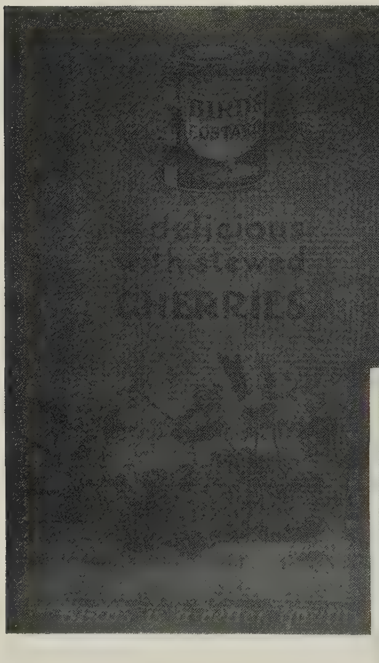
essrs. Albert & Cie have organised a special school in which
truction can be obtained by the employees or principals of any
n who purchase a Photogravure machine from them. The course
instruction given in this school is a very complete and
nprehensive one.

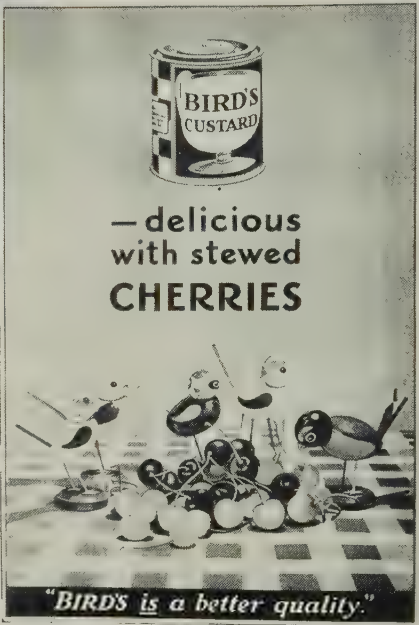
quotation and full particulars will be despatched on application to
: sole Agents in the United Kingdom and the Irish Free State.

e, Norfolk St., Strand, London, W.C.2
Works: BALHAM, S.W. 17

COMPARATIVE PRINTS WHICH PROVE THE SUPERIORITY OF IMPERIAL PANCHROMATIC PLATES

This advertisement is reproduced by courtesy of Messrs. Alfred Bird & Sons, Ltd. It was printed in two colours, red and blue, on yellow paper.


BIRD'S
CUSTARD
delicious
with stewed
CHERRIES


BIRD'S CUSTARD

—delicious with stewed CHERRIES

"BIRD'S *is* a better quality."

THE difference in method between these two reproductions is, that one was taken on an ordinary plate and the other on an Imperial Panchromatic 'B' Plate. The subject was the same and the conditions identical in each case. Here is clear proof of the strikingly faithful rendering in monochrome, of coloured objects, given by Imperial Panchromatic Plates. This quality allied to their fine grain, wide latitude, and ease of manipulation ensures perfect negatives of any required density.

IMPERIAL PANCHROMATIC PLATES

are the choice of the experienced photographer. They are manufactured in two speeds, Panchromatic B 350 H. & D. and Panchromatic Process, H. & D. 70.

THE IMPERIAL DRY PLATE CO., LTD.

CRICKLEWOOD, LONDON, N.W.2
ENGLAND.

Telephones:
Willesden 4286
Willesden 4287

Telegraphic Address:
Impeople, Crickle, London

JOHNSON'S

SCALES TRADE MARK BRAND

PHOTOGRAPHIC
CHEMICALS

AMIDOL-JOHNSON'S
METOL-JOHNSON'S
ACID PYROGALLIC
GLYCIN-JOHNSON'S
AZOL THE CORRECT DEVELOPER

ALSO

TONINGS
INTENSIFIERS
REDUCERS, etc.
ACID-FIXING
MOUNTING
PHOTO-TINTS
FLASHPOWDER
etc., etc.

Chemical Price List sent
regularly on application.

JOHNSON & SONS, *Manufacturing Chemists, Ltd.*
HENDON, LONDON, N.W.4

The House for Quality and Service

IT WILL PAY YOU

to see our Manufactures and let us quote you before you order

WOOD FURNITURE
REGLETS · QUOINS
PRINTERS' JOINERY
OF ALL KINDS
MOUNTING WOOD
CLAMPED BOARDS

Sole Manufacturers of the
Whitfield Patent Mounting
Boards for Printers

J. H. WHITFIELD, Ltd

Works and Showrooms:
11, 13, and 15 HOBBS PLACE
St. John's Road, LONDON, N.1

Telephone : Clerkenwell 7495

AUTOTYPE
ROTARY PHOTOGRAVURE
TISSUES

Acknowledged to be the most perfect material manufactured for the Process, and employed by the principal houses throughout the world.

Samples and list containing "Notes on the Rotary Photogravure Process," free on application.

The Autotype Company possesses a thoroughly practical knowledge of the process which they place at the disposal of all photogravure workers. Correspondence and personal visits invited.

THIRTY - TWO MEDALS AND DIPLOMAS FOR EXCELLENCE OF PRODUCTION

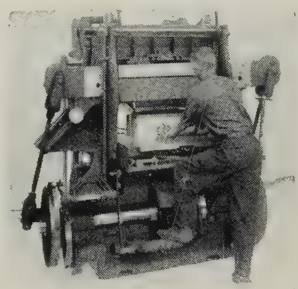
TRADE MARK
AUTOTYPE

The AUTOTYPE COMPANY

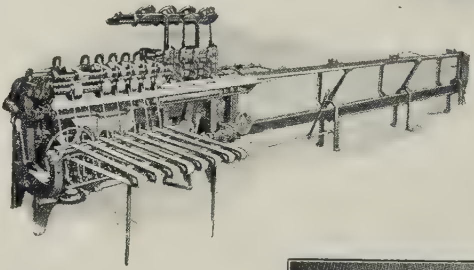
59 New Oxford Street London, W.C.1
Works: West Ealing **Established 60 Years**

Make Factories Pay

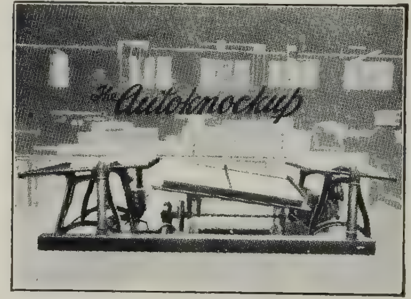
BY THE WELL-PROVEN, SUCCESSFUL METHOD OF INSTALLING OUR LINE OF WONDERFUL LABOUR-SAVING MACHINERY



SEYBOLD Three-knife Book, Magazine and Pamphlet Trimming Machine. Range $5\frac{1}{4}'' \times 24''$ in length and $2\frac{3}{4}''$ to $16''$ in width.



CHRISTENSEN Automatic Wire Stitcher. Gathers, covers, wire stitches all in one operation at an enormous speed Magazines, Weeklies, Journals, Pamphlets, etc.



AUTOKNOCKUP Jogging Machine. This machine is a British Invention. It takes sheets up to $40'' \times 50''$ or larger machines can be supplied if required.

WE REPRESENT THE SOLE SALE OF:—

The Smyth Mfg. Co.'s Book Sewing, Case Making, Casing-In and Trimming Machines; The Seybold Co.'s Automatic Guillotines and Three-knife Book and Magazine Trimmers; The Chambers Bros. Co.'s Quadruple Book Folding Machines, and "King" Continuous Feeder; The Bracket Stripping and Binding Machines; The Christensen Machine Co.'s Wire Stitcher Feeder; The Pleger Hinged Paper Covering Machine; The Berry Machine Co.'s Standing Book Press, Air Bundling Press, Round Hole Cutters; The American Assembling Machine Co.'s Juengst Gathering Auto-Covering and Wireless Binding Machines; The Crawley Power Rounding and Backing Machine.

SMYTH-HORNE LIMITED

1-3 BALDWIN'S PLACE, GRAY'S INN RD., LONDON, E.C.1

Telephone: Holborn 2215 *Telegrams:* "Smythorne, London."

MODERNIZE
YOUR COMPOSING ROOM

Above shows one of the two large composing Rooms of Messrs. Hazell, Watson and Viney, Ltd., Aylesbury. Entire equipment made of steel, designed and installed by Baker Sales Co.

Illustration showing modern All-Steel Composing Room Equipment in the works of Messrs. Bemrose and Sons, Ltd., Derby. Designed, arranged and installed by Baker Sales Co.

We are prepared to submit plans that will make your Composing Room 100% efficient.

BAKER SALES CO.

23 FARRINGDON AVENUE : LONDON : E.C.4

This book has been printed throughout on

Dickinson's Papers
with
Winstone's Inks
on
Linotype & Machinery
Machines

[redacted]

SUN
I KEEP THE TIME

KU-054-981